Command Reference

Digi Connect® Family

Digi Connect SP, Digi Connect Wi-SP, Digi Connect ME, Digi Connect Wi-ME, Digi Connect EM, Digi Connect Wi-EM, Digi Connect WAN, Digi Connect RG, Digi Connect ES Family

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Making DEVICE NETWORKING easy

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This chapter provides the following:

- A quick reference showing the commands used to configure features or perform configuration tasks from the command line.
- Basic information that applies to all commands, including navigation and editing keys, displaying online help, abbreviating commands, syntax conventions, and entering special characters in string values.
- How to access the command line.
- How to configure an IP address for a Digi device from the command line, if an address has not already been assigned.

Throughout this manual, the “Digi Connect Family” includes the following devices:

- Digi Connect SP
- Digi Connect Wi-SP
- Digi Connect ME
- Digi Connect Wi-ME
- Digi Connect EM
- Digi Connect Wi-EM
- Digi Connect WAN
- Digi Connect RG
- Digi Connect ES Family (Digi Connect ES 4/8/16 devices)

Quick Reference for Configuring Features

The following table shows common features that can be configured from the command line, and the commands used to configure each feature.

Feature/Task	Commands
Configure Alarms	"set alarm" on page 46
Configuration management/Administration:	
Backup/restore a configuration from a TFTP server on the network	"backup" on page 14
Update firmware	"boot" on page 15
Reset configuration to factory defaults	"revert" on page 39 boot action=factory (see "boot" on page 15)
Reboot the device	"boot" on page 15
Connectware Device Protocol configuration settings	"set devicesecurity" on page 57 "set mgmtconnection" on page 74 "set mgmtglobal" on page 77 "set mgmtnetwork" on page 78
Custom menus	"set menu" on page 69
Display current configuration settings in a device	"show" on page 144
Display device statistics	"info" on page 25
Display device status	"display" on page 19 "status" on page 147 "who" on page 149
Forwarding	"set forwarding" on page 62
General Purpose Input/Output (GPIO) pins	"set gpio" on page 63 "set alarm" on page 46
Help on device commands	"help" on page 24
Host name for a device (Specify a name for the device)	"set host" on page 68
Manage connections	"connect" on page 18 "reconnect" on page 38 "rlogin" on page 42 "telnet" on page 148 "who" on page 149 "close" on page 17 "kill" on page 33

Feature/Task	Commands
Modem emulation	"set pmodem" on page 102 "set serial" on page 116 Chapter 3, "Modem Emulation Commands" on page 151
Network access control	"set accesscontrol" on page 44
Network configuration	"set network" on page 84
Network services, enabling and disabling	"set service" on page 118
Ping a host or device	"ping" on page 36
Point to Point Protocol (PPP)	"set pppoutbound" on page 104
Port buffering	"display buffers" on page 21 "set buffer" on page 55
RealPort (COM port redirection)	See the *RealPort Installation Guide* for details on configuring this feature.
Remote login (rlogin)	"rlogin" on page 42
Network Address Translation (NAT) and port forwarding configuration	"set nat" on page 81 "set forwarding" on page 62
Security/access control features:	
Control access to inbound ports	"set service" on page 118
Serial port configuration:	
Enable/disable command-line access	"set term" on page 126
General serial port communication options	"set serial" on page 116
Port profiles	"set profile" on page 110
RCI serial mode	"set rciserial" on page 113
RTS Toggle	"set rtstoggle" on page 114
TCP serial connections	"set tcpserial" on page 123
UDP serial characteristics	"set udpserial" on page 127
Automatically connect to a server or network device (autoconnection)	"set autoconnect" on page 51 "set serial" on page 116 "set tcpserial" on page 123

Feature/Task	Commands
Security and access permissions	• To change user name for a user: "set user" on page 131 • To issue new password to user: "newpass" on page 35 • To set permissions associated with various services and commands: "set permissions" on page 86 • To add or remove user groups, change group configuration attributes, or display group configuration attributes: "set group" on page 65
Simple Network Management Protocol (SNMP)	• To configure SNMP: "set snmp" on page 120 • To enable/disable SNMP service: "set service" on page 118 • To enable/disable SNMP alarm traps: "send" on page 43
Set system information: assign system-identifying information to a device	"set system" on page 122
Telnet to network devices	"telnet" on page 148 "mode" on page 34 "send" on page 43
Wired devices	"set ethernet" on page 60
Wireless devices	"set wlan" on page 136

Basic Command Information

Navigation and Editing Keys

Use the keys listed in the table to navigate the command line and edit commands:

Action	Keys
Move the cursor back one space.	Ctrl+b
Move the cursor forward one space.	Ctrl+f
Delete the character to the left of the cursor.	Back space or Ctrl+h
Delete the character under the cursor.	Delete
Scroll back through commands.	Ctrl+p
Scroll forward through commands.	Ctrl+n
Execute the command.	Enter

Displaying Online Help

Help is available for all commands. The table describes how to access it.

For information on...	Type
All commands	? (with no additional options)
A specific command	help [*command*] OR [*command*] ? **Example:** help info **Example:** info ? **Example:** set alarm ?

Abbreviating Commands

All commands can be abbreviated. Simply supply enough letters to uniquely identify the command.

Syntax Conventions

Presentation of command syntax in this manual follows these conventions:

- Brackets [ ] surround optional material.
- Braces { } surround entries that require you to chose one of several options, which are separated by the vertical bar, |.
- Non-italicized text indicates literal values, that is, options or values that must be typed exactly as they appear. Yes and no options are examples of literals.
- Italicized text indicates that a type of information is required in that option. For example, *filename* means that the name of a file is required in the option.

Entering Special Characters in String Values

Several commands have options that are string values, for example the “set alarm” command’s “match” option and the “set autoconnect” command’s “connect_on_string” option.

Escape Sequences for Special Characters

Special characters can be entered in strings using the following escape sequences:

Escape Sequence	Processed as:
*	Match any character. This escape sequence is only available on the “set alarm match=string” option.
\a	Alert character.
\b	Backspace character.
\f	Form-feed character.
\n	New-line character.
\r	Carriage-return character.
\s	Acts as a separator between characters. This sequence allows you to enter a string such as “\xB8\s4” where you want the B8 translated as a hexadecimal character separate from the numeric character 4.
\t	Horizontal tab character.
\v	Vertical tab character.
\\	Backslash character (\ ).
\x*N*	A hexadecimal number, where *N* is up to 20 hexadecimal digits. For example: `\x10\x2`
N	An octal byte, where *N* is up to 3 octal digits. For example: `\2` or `\208`

Length Limitations on String Vales

String values for certain command options have specific limitations on the maximum total string value including special characters, and the maximum parsed value (that is, the character-string length when any escape sequences in the string are processed). The option descriptions note these maximum lengths.

Access the Command Line

To configure devices using commands, you must first access the command line from a Telnet session, and then log on as needed.

This procedure assumes that you have configured the Digi device with an IP address already.

1. To Telnet to the device server, enter the following command from a command prompt on another networked device, such as a server:

   `telnet` *`ip-address`*

   where *ip-address* is the device server's IP address. For example:

   ```
   telnet 192.3.23.5
   ```

2. If security is enabled for the device, (that is, a username and password have been set up for the device), a login prompt is displayed. If you do not know the user name and password for the device, contact the system administrator who configured the device.

Configure an IP Address

If the device to which you will be issuing commands has not already been assigned an IP address, or if the IP address needs to be modified from its initial configuration, see the *Digi Connect User's Guide* for details on configuring an IP address.

Chapter 2 **Command Descriptions**

This chapter provides a description of each command in the Digi Connect Command-Line Interface.

Verifying Device Support for Commands

For verification that a device supports a particular command, you can enter several commands. For example:

- “help” displays all supported commands for a device.
- “?” displays all supported commands for a device
- “set ?” displays the syntax and options for the “set” command. You can use this to determine whether the device includes a particular “set” command variant.
- “help set” displays syntax and options for the “set” command.
- “set serial ?” displays the syntax and options for the “set serial” command.
- “help set serial” displays the syntax and options for the “set serial” command.

Some options may become available in new firmware revisions or before new documentation is released.

Some commands relate only to particular features unique to specific devices. For example, the “set wlan” command applies only to wireless devices. Other commands may have options that are specific to features that are not available on all devices. For example, the “display” command’s “mobile” option applies only to Digi Connect WAN and Digi Connect RG devices.

backup

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Use the backup command to save or restore the device configuration from a TFTP server located on the network.

Required permissions

Permissions must be set to “set permissions backup=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
backup [to=serveripaddress[:filename]|
  from=serveripaddress[:filename]|print]
```

Options

to=*serveripaddress*[*:filename*]
The IP address of the TFTP server to which the configuration will be saved, and the filename that the configuration will be saved as. If a filename is not specified, the **default filename of config.rci** is used.

from=*serveripaddress*[*:filename*]
The IP address of the TFTP server and the filename from which the configuration will be restored. If a filename is not specified, the **default filename of config.rci** is assumed.

print
Prints out the current device configuration.

Example

```
backup from=10.0.0.1:config.rci
```

See also

"set rciserial" on page 113. The “set rciserial” command allows a configuration file to be loaded over a serial port when the DSR input signal is high.

boot

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

The boot command is used to reboot the device server, restore the device configuration to factory default settings, and load new firmware (both EOS and POST images) from a TFTP server.

Required permissions

Permissions must be set to “set permissions boot=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Reboot the device server

```
boot action=reset
```

Restore configuration defaults

```
boot action=factory
```

Load new firmware into flash ROM from a TFTP host

```
boot load=host-ip-address:load-file
```

Options

action

The action to be performed.

factory

Resets the entire configuration to factory defaults, then reboots the device.

reset

Reboots the device.

load

The firmware to be loaded.

host-ip-address

The IP address of a host with new firmware, which is then burned into flash ROM. The host must be running a TFTP server.

load-file

The name of the firmware file.

Examples

Restore configuration defaults

This example reloads the firmware stored in flash ROM and resets the configuration to factory defaults then reboots the device.

```
boot action=factory
```

Reboot using the current firmware and configuration

This example reboots the device and uses the current firmware and configuration stored in flash ROM.

```
boot action=reset
```

Reboot using firmware from a boot host

This example loads the firmware stored on the TFTP host into flash ROM. A reboot is required to use the new firmware.

```
boot load=10.0.0.1:firmware.bin
```

See also

"revert" on page 39

close

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Closes active connect, Rlogin, and Telnet sessions; that is, sessions opened by “connect,” “rlogin,” or “telnet” commands.

The “close” command is associated with the sessions displayed by the “status” command.

A “close” command issued without any options closes the current connection.

To issue the “close” command, you must escape the active session. Do this by pressing the escape key defined for your session type. The following table lists default escape keys.

Session Type	Default Escape Keys
Connect	Ctrl+[+Enter
Rlogin	~+Enter
Telnet	Ctrl+]+Enter

Syntax

```
close [{*|connection-number}]
```

Options

***
Closes all active sessions.

connection-number
Identifies the session to close by its session number.

Examples

Close a session identified by number

```
close 1
```

Close the current session

```
close
```

Close all active sessions

```
close *
```

See also

- "kill" on page 33. The kill command has a broader effect than close, and lets you kill connections from the global list. That is, it is not limited to sessions associated with the current connection.
- "status" on page 147 for information on displaying status information on active sessions.
- "connect" on page 18
- "rlogin" on page 42
- "telnet" on page 148

connect

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to make a connection, or establish a session, with a serial port.

There are several ways of using the connect command:

- To make multiple connections, issue multiple connect commands.
- To temporarily suspend a connection, escape the active session by pressing Ctrl [.
- To temporarily suspend a connection and return to the command line, press the escape character and then the Enter key.
- To switch between active sessions (without first escaping to the command line), press the escape character and then the number of the session you wish to enter. Pressing the connect escape character twice causes the next session to appear, enabling you to easily page through sessions.

Required permissions

Permissions must be set to “set permissions connect=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
connect serial_port
```

Options

serial_port

The number of the port on which to establish a connection.

Example

The following command creates a connection to port 1:

```
connect 1
```

See also

- "close" on page 17 for information on ending a session.
- "reconnect" on page 38 for information on reestablishing a port connection.

display

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Use the display command to status information for a device. Command options allow for displaying a variety of status information, including:

- General product information, including the product name, MAC address, boot, post, and firmware versions, memory usage, utilization, and uptime, or the amount of time since the device was last booted.
- Access control status information
- GPIO signals.
- Memory usage information only.
- Mobile (cellular modem) status information.
- Network Address Table (NAT) status information
- Point-to-Point Protocol (PPP) status information
- Serial modem signals (DTR, RTS, CTS, DSR, DCD).
- Uptime information only.
- Boot, POST and EOS firmware version information and Digi part numbers for those items
- Typical wireless LAN (WLAN) parameters for wireless devices.

Required permissions

Permissions must be set to “set permissions display=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
display
  {accesscontrol|device|gpio|memory|mobile|nat|pppstats|serial|
  uptime|version|wlan}
```

Options

accesscontrol
Displays access control status information.

device
Displays general product information including product name, MAC address, boot, post, and firmware versions, memory usage, utilization, and uptime. The information displayed by this option is the same as that displayed by the “info device” command (see "info" on page 25).

gpio
Displays GPIO signals.

memory
Displays general memory, network memory, and streams memory usage.

mobile
Displays mobile (cellular modem) status information. (This option applies to Digi Connect WAN and Digi Connect RG devices only.)

nat
Displays Network Address Table (NAT) status information.

pppstats
Displays Point-to-Point Protocol (PPP) status information.

serial
Displays serial modem signals (DTR, RTS, CTS, DSR, DCD).

uptime
Displays amount of time since the device was booted.

version
Displays boot, POST and EOS firmware version information and Digi part numbers for those items.

wlan
Displays typical wireless LAN (WLAN) parameters for wireless devices.

Example

```
display device
```

See also

The “display” command’s focus is on real-time information. In contrast, the “info” command displays statistical information about a device over time, while the “status” command displays the status of outgoing connections (connections made by “connect,” “rlogin,” or “telnet” commands). For more information, see these commands:

- "info" on page 25.
- "status" on page 147

display buffers

Devices supported

This command is supported in all Digi Connect devices except the Digi Connect WAN.

Purpose

The display buffers command is used to display the contents of a port buffer, or Transfer the contents of a port buffer to a server running Trivial File Transfer Protocol (TFTP). Port buffering is enabled by the “set buffer” command (see "set buffer" on page 55). Contents are displayed in log form.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the contents of a port buffer for the line on which they are logged in: “set permissions buffers=r-self” or higher.
- For a user to display the contents of a port buffer for any line: “set permissions buffers=read” or higher.

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
display buffers [port=range] {[screen] [lines=number]
  [tail=number] | tftp=server:filename}
```

Options

port=*range*
The port or ports to which the command applies. Optional on a single-port device.

screen
Displays the port buffer contents on the screen when screen is specified.

lines=*number*
The number of lines of data to display at a time when the “screen” option is specified. Use 0 to indicate continuous flow.

tail=*number*
The total number of lines in the buffer to be displayed. The number is calculated from the end of the buffer counting back.

tftp=*server*:*filename*

server
The IP address or DNS name of a server running TFTP to which buffer information should be transferred.

filename
The name to use for the file that will be transferred to the TFTP server. If the “port” option specifies more than one port, one file will be transferred for each port. The filename for each port will be *filename_n*, where n is the port number.

Examples

Display port buffering information on the screen

```
display buffers port=2 screen lines=32 tail=30
```

Output buffering information to a TFTP server

```
display buffers port=2 tftp=192.168.1.1:port_ouput
```

Output multi-port buffering information to a TFTP server

```
display buffers port=2-3 tftp=192.168.1.1:port_ouput
```

Note that port 2 buffering information goes to file port_output_2 and port 3 buffering information goes to file port_output_3.

See also

- "set buffer" on page 55

exit

Devices supported	This command is supported in all Digi Connect Family devices.
Purpose	Use the exit command to terminate your current session.
Syntax	`exit`
Example	`exit`
See also	"quit" on page 37. The quit and exit commands perform the same operation.

help

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Displays help about a specific command.

Syntax

```
help [command]
```

OR

```
[command]?
```

Examples

```
help boot
boot?
help set serial
set serial?
```

See also

"Displaying Online Help" on page 9.

info

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

This command prints out statistical information about a device. Command options allow display of the following categories of statistics:

- Device statistics
- Ethernet statistics
- ICMP statistics
- IP statistics
- Serial statistics
- TCP statistics
- UDP statistics
- WLAN statistics (For wireless devices only)

The statistics in these tables are those gathered since the tables were last cleared.

Syntax

```
info {device|ethernet|icmp|ip|serial|tcp|udp|wlan}
```

Options

For a description of the statistics displayed by all these options, see “Results” on the following page.

device
Displays statistics from the device table. This information includes device-model information, MAC address, current Boot and POST code, firmware, memory usage, utilization, and uptime. The information displayed by this option is the same as that displayed by the “display device” command (see "display" on page 19).

ethernet
Displays statistics from the Ethernet table.

icmp
Displays statistics from the ICMP table.

ip
Displays statistics from the IP table.

serial
Displays statistics from the serial table. For descriptions of these statistics, see "Results" on page 26.

tcp
Displays statistics from the TCP table.

udp
Displays statistics from the UDP table.

wlan
Displays statistics from the wireless Ethernet (wlan) table.

Results

Following are descriptions of the statistics displayed for each “info” command option.

The statistics displayed include data, event, and error counts. These statistics are useful in understanding how the device is operating and can be helpful in finding problems. In particular if an error counter is found to be increasing you may have a problem with the device.

To reset the statistics, reboot the device.

Device statistics

Device Information	Description
Product	The model of the Digi Connect device.
MAC Address	A unique network identifier. All network devices are required to have their own unique MAC address. The MAC address is on a sticker on your Digi Connect device. The number is displayed as 12 hexadecimal digits, usually starting with 00:40:9D.
Firmware Version	The current firmware version. This information may be used to help locate and download new firmware. Firmware updates may be downloaded from the Digi Support website.
Boot Version	The current boot version.
Post Version	The current POST version.
CPU Utilization	The amount of CPU resources being used by the Digi Connect device.
Uptime	The amount of time the Digi Connect device has been running since it was last powered on or rebooted.
Total Memory	The total amount of memory (RAM) available.
Free Memory	The amount of memory (RAM) currently not being used.
Used Memory	The amount of memory (RAM) currently in use.

Ethernet statistics

Statistic	Description
InBytes	Number of bytes received.
OutBytes	Number of bytes sent.
InUcastPkts	Number of Unicast packets received.
OutUcastPkts	Number of Unicast packets sent.
InNonUcastPkts	Number of non-Unicast packets received.
OutNonUcastPkts	Number of non-Unicast packets sent.
InDiscards	Number of incoming packets that were discarded.
OutDiscards	Number of outgoing packets that were discarded.
InErrors	Number of incoming packets that contained errors.
OutErrors	Number of outgoing packets that contained errors.
RxOveruns	Number of Rx overruns. Rx overruns are generally caused by the inability of the device to get sufficient bus bandwidth to offload the data.
TxResets	Number of times the transmitter has been reset.
InUnknownProtos	Number of incoming packets where the protocol was unknown.

ICMP statistics

Statistic	Description
InMessages	Number of incoming messages.
OutMessages	Number of outgoing messages.
InDestUnreachables	Number of incoming destination-unreachable messages received. A destination-unreachable message is sent to the originator when a datagram fails to reach its intended destination.
OutDestUnreachables	Number of destination-unreachable messages sent. A destination-unreachable message is sent to the originator when a datagram fails to reach its intended destination.
InErrors	Number of incoming received messages with errors.

IP statistics

Statistic	Description
InReceives	Number of datagrams received.
OutRequests	Number of datagrams given to IP to transmit.
InAddressErrors	Number of received datagrams discarded because they were for another host and could not be forwarded.
DatagramsForwarded	Number of received datagrams forwarded to another host.
InHeaderErrors	Number of received datagrams discarded because of invalid header information.
OutNoRoutes	Number of received datagrams discarded because no route to the destination IP address could be found.
InUnknownProtos	Number of received datagrams discarded because the specified protocol is not available.
OutDiscards	Number of outgoing datagrams that were discarded for miscellaneous reasons. This statistic is not used and is always zero.
InDiscards	Number of received datagrams discarded for miscellaneous reasons.
FragCreates	Number of outgoing datagram fragments created.
ReassembleOks	Number of received datagrams that were successfully reassembled from fragments.
FragOks	Number of outgoing datagrams that were fragmented.
FragFails	Number of outgoing datagram fragmentation attempts that failed. This statistic is not used and is always zero.
AclExamines	Number of received datagrams examined for access control filtering.
AclAccepts	Number of received datagrams accepted after being examined by access control filtering.
AclDiscards	Number of received datagrams discarded after being examined by access control filtering.
NatPrivateToPublic	Number of datagrams received from the private network, successfully translated by NAT, and returned to IP to be forwarded to the public network.
NatPublicToPrivate	Number of datagrams received from the public network, successfully translated by NAT, and returned to IP to be forwarded to the private network.

Serial statistics

Statistic	Description
rbytes	Total data in: the number of bytes received.
tbytes	Total data out: the number of bytes transmitted.
overrun errors	The number of times FIFO has overrun. The next data character arrived before the hardware could move the previous character.
overflow errors	The number of times the Received buffer has overrun. The receive buffer was full when additional data was received.
frame errors	The number of framing errors detected. The received data did not have a valid stop bit.
parity errors	The number of parity errors detected. The received data did not have the correct parity setting
breaks	The number of break signals detected.
signal change	For each signal (CTS, DSR, RI, DCD, RTS, DTR), the number of times the signal has changed states.

TCP statistics

Statistic	Description
InSegments	Number of segments received.
OutSegments	Number of segments sent.
InErrors	Number of segments received with errors.
RetransmitSegments	Number of segments retransmitted. Segments are retransmitted when the server doesn't respond to a packet sent by the client. This is to handle packets that might get lost or discarded somewhere in the network.
EstabResets	Number of established connections that have been reset.
OutResets	Number of outgoing connections that have been reset.
PassiveOpens	Number of passive opens. In a passive open, the Digi device server is listening for a connection request from a client.
ActiveOpens	Number of active opens. In an active open, the Digi device server is initiating a connection request with a server.
Established	Number of established connections.
Attempt Fails	Number of failed connection attempts.

UDP statistics

Statistic	Description
InDatagrams	Number of datagrams received.
OutDatagrams	Number of datagrams sent.
InErrors	Number of bad datagrams that were received. This number does not include the value contained by "No Ports"
NoPorts	Number of received datagrams that were discarded because the specified port was invalid.

Wireless (WLAN) statistics

The WLAN statistics may aid in troubleshooting network communication problems with your wireless network.

Statistic	Description
TxFrames	Number of frames transmitted.
TxBroadcastFrames	Number of broadcast frames transmitted.
TxRtsFrames	Number of Request-to-Send (RTS) frames transmitted.
TxRetries	Number of times an outgoing frame is retransmitted because the acknowledgement for the frame was not received.
TxDroppedRetries	Number of outgoing frames that were dropped because the maximum number of retries were exceeded for the frame.
TxDroppedBroadcasts	Number of broadcast frames dropped because the acknowledgement for the frame was not received.
TxDroppedAssoc	Number of outgoing packets dropped because the device had not yet associated with a wireless network
RxFrames	Number of received frames.
RxBroadcastFrames	Number of received broadcast frames.
RxRtsFrames	Number of RTS frames received.
RxRetries	Number of incoming frames that have the retry bit set in their frame header. The retry bit indicates that the other side has attempted to transmit a given frame more than once.
RxDroppedNoBuffers	Number of received frames dropped due to no buffer.
RxDropInvalid	Number of incoming frames dropped because the frame appeared incorrect.
RxDropDuplicate	Number of incoming frames dropped because a given frame had already been received.
RxDropAge	Number of fragmented frames dropped because the fragment timed out before the rest of the frame sequence was received.
RxDropDecrypt	Number of frames dropped because they were not properly encrypted.
RxDropSize	Number of frames dropped because their frame size was too big

Examples

Display ICMP statistics

```
#> info icmp

ICMP statistics:

InMessages           : 14              OutMessages          : 0
InDestUnreachables   : 5               OutDestUnreachables  : 0
InErrors             : 0
```

See also

The “info” command displays statistical information about a device over time. In contrast, the “display” command’s focus is on real-time information, while the “status” command displays the status of outgoing connections (connections made by “connect,” “rlogin,” or “telnet” commands). For more information, see these commands:

- "display" on page 19.
- "status" on page 147

kill

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Use the kill command to kill connections. The kill command is associated with the connections displayed by the who command.

Required permissions

Permissions must be set to “set permissions kill=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
kill [range] [connection_id]
```

Options

range
A range of connection IDs.

connection_id
An ID for the connection.

Examples

Killing a session on a specific port

```
kill 1
```

Killing a session on a range of ports

```
kill 1-3
```

See also

- "close" on page 17, to close sessions created from the current connection.
- "status" on page 147, to display the list of current sessions.
- "who" on page 149, for information on determining active connections.

mode

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Changes or displays the operating options for a current Telnet session.

Required permissions

Permissions must be set to “set permissions telnet=execute” to display or set Telnet operating options. See "set permissions" on page 86 for details on setting user permissions for commands.

Required privileges

Anyone can use this command.

Syntax

Change Telnet options

```
mode [options]
```

Display Telnet options

```
mode
```

Options

options

The operating options for a current Telnet session, which are as follows:

binary={on|off}

Enables or disables Telnet binary mode is enabled or disabled. “binary=on” turns on binary mode, which means that all transmitted and received characters are converted to binary during this Telnet session. “binary=off” turns off binary mode off for this Telnet session. The default is off.

crmod={on|off}

Specifies whether line feeds are added to received carriage returns. “crmod=on” specifies that line feeds are added to received carriage returns. “crmod=off” specifies that line feeds are **not** added to received carriage returns. The default is off.

Examples

Turn on binary mode

```
mode binary=on
```

Add line feed characters

```
mode crmod=on
```

Display operating options

```
mode
```

See also

"telnet" on page 148.

newpass

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Use the newpass command to create or change user passwords for the device.

Required permissions

Permissions must be set to “set permissions newpass=rw-self” for a user to set their own password, and “set permissions newpass=rw” to set another user’s password. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

`newpass [id=`*`number`*`|name=`*`string`*`]`

Options

id=*number*
Specifies the ID of the user to be acted on.

name=*string*
Specifies the name of the user to be acted on.

Example

The “newpass” command initiates a dialog that changes the user’s password.

User changing their own password

```
newpass
```

Changing another user’s password

```
newpass name=jdoe
```

See also

See "set user" on page 131 for information on configuring users.

ping

Devices supported

This command is supported in all Digi Connect devices.

Purpose

Tests whether a host or other device is active and reachable.

To interrupt the “ping” command, use Ctrl-C.

Required permissions

Permissions must be set to “set permissions ping=execute” for a user to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
ping ipaddress [options]
```

Options

ipaddress

Identifies the target of the “ping” command by its IP address.

options

The options associated with the “ping” command, which are:

count=0|*n*

The number of “ping” commands to be issued. 0 means ping until interrupted. The default is 0.

interval=*milliseconds*

The ping time in milliseconds. The default is 1000 milliseconds.

size=*bytes*

The number of bytes to send in each ping packet. The default is 56 bytes.

Examples

Specify a simple ping

The following command determines whether the specified host can be reached:

```
ping 199.150.150.10
```

quit

Devices supported	This command is supported in all Digi Connect Family devices.
Purpose	Use the quit command to log out of the device.
Syntax	`quit`
Example	`quit`
See also	"exit" on page 23. The “quit” and “exit” commands perform the same operation.

reconnect

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Reestablishes a previously established connection; that is, a connection opened by a connect, rlogin, or telnet command. The default operation of this command is to reconnect to the last active session.

Required permissions

Permissions must be set to “set permissions reconnect=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
reconnect [{serial-port|p=serial-port|s=session}]
```

Options

serial-port

The serial port to which this command applies. Use this option to reconnect to a session opened by a connect command.

p=*serial-port* | s=*session*

The serial port number or session number (displayed by the “status” command) to reconnect to.

Example

Reconnect to the last port used

```
reconnect
```

Reconnect to port 1

```
reconnect p=1
```

Reconnect to session 1

```
reconnect s=1
```

See also

- "connect" on page 18 for information on establishing a connection on a selected port.
- "close" on page 17 for information on ending a connection.
- "status" on page 147 for information on gathering status on current connections.
- "rlogin" on page 42
- "telnet" on page 148

revert

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Sets a particular group of a devices' settings to its default values.

If you enter "revert user," "revert group," or "revert permissions," a message is displayed indicating that those settings cannot be reverted individually, and instead must be reverted all together at the same time via the “revert auth” command. The “revert auth” command (revert authentication and authorization) reverts all users, all groups, and all permissions at the same time.

Required permissions

No “set permissions” option is required for all “revert” command variants except “revert all.” The permissions used by the various “set” commands apply to the various “revert” command variants. “revert all” uses a different mechanism that bypasses the individual “set” commands, and therefore has its own permissions. To execute the “revert all” command, a user must have permissions set to “set permissions revert-all=execute”. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
revert [all|accesscontrol|alarm|auth|autoconnect [port=range]|
  buffer [port=range]|
  devicesecurity|forwarding|gpio|host|menu|mgmtconnection|
  mgmtglobal|mgmtnetwork|nat|network|pmodem [port=range]|
  |pppoutbound [port=range]|
  profile [port=range]|serial [port=range]
  service|snmp|system|tcpserial [port=range]|term [port=range]|
  udpserial [port=range]|user|wireless]
```

Options

all
Reverts everything except network settings.

alarm
Reverts the alarm settings configured by the “set alarm” command.

accesscontrol
Reverts the access control settings configured by the “set accesscontrol” command.

auth
Reverts the permission settings configured by the “set permissions” command, the user settings configured by the “set user” command, and group settings, configured by the “set group” command.

autoconnect [port=*range*]
Reverts the Autoconnect settings configured by the “set autoconnect” command.

buffer [port=*range*]
Reverts the port-buffering settings configured by the “set buffer” command.

devicesecurity
Reverts the Connectware Device Protocol device security settings configured by the “set devicesecurity” command.

forwarding
Reverts the port-forwarding settings configured by the “set forwarding” command.

gpio
Reverts the GPIO settings configured by the “set gpio” command.

host
Reverts the host name set by the “set host” command.

menu
Reverts the custom menu settings configured by the “set menu” command.

mgmtconnection
Reverts the Connectware Device Protocol connection settings configured by the “set mgmtconnection” command.

mgmtglobal
Reverts the Connectware Device Protocol global settings configured by the “set mgmtglobal” command.

mgmtnetwork
Reverts the Connectware Device Protocol network settings configured by the “set mgmtnetwork” command.

nat
Reverts the Network Address Translation (NAT) and port/protocol forwarding settings configured by the “set nat” command.

network
Reverts the network settings, configured by the “set network” command, and the wireless configuration settings, configured by the “set wlan” command.

pmodem [port=*range*]
Reverts the modem emulation settings, configured by the “set pmodem” command.

pppoutbound [port=*range*]
Reverts the Point-to-Point Protocol (PPP) outbound connection settings, configured by the “set pppoutbound” command.

profile [port=*range*]
Reverts the profile settings configured by the “set profile” command.

serial [port=*range*]
Reverts the serial settings configured by the “set serial” command.

service
Reverts the service settings configured by the “set service” command.

snmp
Reverts the SNMP settings configured by the “set snmp” command.

system
Reverts the system settings configured by the “set system” command.

tcpserial [port=*range*]
Reverts the TCP serial settings configured by the “set tcpserial” command.

term [port=*range*]
Reverts the terminal connection settings configured by the “set term” command.

udpserial [port=*range*]
Reverts the UDP serial settings configured by the “set udpserial” command.

user
Reverts the user settings configured by the “set user” command.

wireless
Reverts the wireless settings configured by the “set wlan” command.

Example

Reset a device’s serial setting

The device serial setting is reset to the default serial configuration.

```
revert serial
```

Reset a serial port to default settings

```
revert serial port=2
```

See also

- "boot" on page 15
- The various “set” commands referenced in this description.
- "show" on page 144

rlogin

Devices supported

This command is supported in all Digi Connect devices.

Purpose

Performs a login to a remote system, also referred to as an rlogin.

Required permissions

Permissions must be set to “set permissions rlogin=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
rlogin [esc=(char)] [{user=user-name|-l user-name}]
  [ip_address]
```

Options

esc

A different escape character than the ~ (tilde) character, which will be used for the current Rlogin session. This character is used for suspending a session from the remote host to return to the device server command line.

user=*user-name* | -l *user-name*

The user name to use on the remote system. If you do not specify a name, your device server user name will be used. The “-l *user-name*” option is for compatibility with the UNIX “rlogin” command.

ip_address

The IP address of the system to which you are performing the remote login.

Examples

```
rlogin 10.0.0.1
```

See also

- "telnet" on page 148
- "connect" on page 18
- "status" on page 147
- "close" on page 17

send

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Sends a Telnet control command to the last active Telnet session.

Required permissions

Permissions must be set to “set permissions telnet=execute” to display or set Telnet operating options. See "set permissions" on page 86 for details on setting user permissions for commands.

Required privileges

Anyone can use this command.

Syntax

```
send {ao|ayt|brk|ec|el|escape|ga|ip|nop|synch}
```

Options

ao
Sends the “abort output” signal to discard output buffered on the peer.

ayt
Sends the “are you there” signal to test whether a host is still active.

brk
Sends the “break” signal to interrupt the executing application.

ec
Sends the “erase character” to delete the previous character.

el
Sends the “erase line” signal to delete the entire current line.

escape
Sends the “escape” character.”

ga
Sends the “go ahead” signal.

ip
Sends the “interrupt process” signal to terminate the program running on the peer.

nop
Sends the “no option” signal to the peer.

synch
Sends the “synchronize process” signal to the peer.

Examples

Send an “interrupt process” signal

```
send ip
```

Send an “are you there” signal

```
send ayt
```

See also

See "telnet" on page 148 for information on establishing Telnet sessions.

set accesscontrol

Devices supported

This command is supported in Digi Connect WAN and Digi Connect RG devices.

Purpose

Used to specify information that limits network access to this device, or display current access-control settings. For the Digi Connect WAN, the access-control settings also limit routing of packets through the device.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the access control settings:
  "set permissions s-accesscontrol=read"
- For a user to display and set access control settings:
  "set permissions s-accesscontrol=rw"

Syntax

Configure access control settings

```
set accesscontrol [enabled={on|off}] [autoaddsubnets={on|off}]
  [addrip[1-64]=ipaddress] [subnip[1-32]=ipaddress]
  [subnmask[1-32]=mask]
```

Display current access-control settings

```
set accesscontrol
```

Options

enabled={on|off}

Used to enable access control. Care must be used with this command because improper settings can render this device inaccessible from the network. Specifically, setting this option to "on" with no "addrip" option values specified will disable all access.

on
Enables access control.

off
Disables access control.

autoaddsubnets={on|off}

Used to enable the automatic adding of subnets and subnet masks to this table. The IP subnets for the device server's network interfaces (Ethernet and PPP), may be automatically added to the table. This permits access by all IP sources on the device server's networks, without having to explicitly identify either the subnet IP addresses (and netmasks) or individual IP addresses.

on
Enables automatic adding of subnets and subnet masks.

off
Disables automatic adding of subnets and subnet masks.

addrip[1-64]=*ipaddress*

Used to specify up to 64 individual IP addresses that are allowed to access this device.

subnip[1-32]=*ipaddress*
Used to specify up to 32 subnet IP addresses. Any IP address in these subnets will be allowed to access this device server.

subnmask[1-32]=*mask*
Used to specify a subnet mask associated with one of the 32 subnet IP addresses.

Examples

Set access control settings

```
set accesscontrol enabled=on addrip1=143.191.1.228
```

Set access control for a specific subnet

This command will allow any IP address in the 143.191.2.0 subnet (netmask 255.255.255.0) to access this device server:

```
set accesscontrol enabled=on subnip1=143.191.2.0
  subnmask1=255.255.255.0
```

Display access control settings

```
set accesscontrol
```

See also

"revert" on page 39

set alarm

Devices supported

Digi Connect EM, Digi Connect Wi-EM, Digi Connect ME, Digi Connect Wi-ME, Digi Connect WAN, and Digi Connect RG. Setting alarms in GPIO mode is not supported in the Digi Connect SP device.

Purpose

Use this command to configure device alarms or display current alarm settings. Device alarms are used to send emails or SNMP traps when certain device events occur. These events include changes in GPIO signals and data patterns in the serial stream. Up to 32 alarms can be configured in Digi Connect devices.

Required permissions

Permissions must be set to “set permissions s-alarm=read” to display current alarm settings, and to “set permissions s-alarm=rw” to display alarm settings and configure alarms. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set alarms with general options (applies to all alarms)

```
set alarm [state={on|off} | mailserverip=ipaddress | from=string]
```

Set alarms with a range (set multiple alarms)

```
set alarm range={1-n}
  [active={on|off}|to=string|cc=string|subject=string|
  priority={normal|high}|mode={match|gpio}|
  type={email|snmptrap|all}]
```

Set alarms in GPIO mode

```
set alarm range={1-n} mode=gpio
  [pins=list_of_pins|highpins=list_of highpins|
  lowpins=list of lowpins|pin{n}={high|low|ignore}|
  trigger_interval=seconds|reminder={on|off}|
  reminder_interval=seconds]
```

Note: *n* is the pin number.

Set alarms in match mode

```
set mode=match match=string
```

Display current alarm settings

```
set alarm [range={1-n}]
```

Options

Options for setting alarms with general options

from=*string*
The text to be included in the “from” field of an alarm-triggered email.

mailserverip=ipaddress
Used to configure IP address of the mail server to which alarm-triggered emails are sent.

state= {on|off}
Enables or disables all alarms.

on
Enables all alarms.

off
Disables all alarms.

The default is “off.”

Options for setting alarms with a range (set multiple alarms)

The following options apply to setting multiple alarms using a “range” option.

range= {1-*n*}
All alarm options require a “range” option that is used to select the alarm or range of alarms to set the options on. This “range” option is used to specify the indices of the alarms to which the other options will be applied.

active={on|off}
Enables or disables an alarm.

on
Enables an alarm.

off
Enables an alarm.

The default is “off.”

cc=*string*
The text to be included in the “cc” field of an alarm triggered email.

mode={match|gpio}
The alarm mode, which determines what type of event will trigger an alarm.

match
Specifies that an alarm will be triggered when a pattern is found in the stream of serial data.

gpio
Specifies that the transitions for GPIO pins will trigger alarms. See "Options for setting alarms in GPIO mode" on page 49 for more information about GPIO.

The default is “gpio” for all Digi Connect devices except Digi Connect SP. For Digi Connect SP, the only option available is “match.”

priority={normal|high}
The priority of the triggered email.

normal
The email is sent with normal priority.

high
The email is sent with high priority.

The default is normal.

The default is off.

subject=*string*
If “type=email,” this option specifies the text to be included in the “subject” field of an alarm-triggered email. If “type=snmptrap,” this option specifies the text to be included in the “Serial Alarm Subject” field of an alarm-triggered SNMP trap.

to=*string*
The text to be included in the “to” field of an alarm-triggered email.

type={email|snmptrap|all}
Used to determine what kind of an alarm is sent: an e-mail alarm, an SNMP trap or both.

In order for SNMP traps to be sent, the IP address of the system to which traps are sent must be configured, by issuing a “set snmp” command with the “trapdestip” option. See "set snmp" on page 120.

email
An email alarm is sent.

snmptrap
An SNMP trap is sent. If snmptrap is specified, the “subject” text is sent with the alarm. The MIB for this trap is named DIGI-SERIAL-ALARM-TRAPS.mib.

all
Both an email alarm and SNMP trap are sent.

The default is “email.”

Options for setting alarms in GPIO mode

In GPIO mode, alarms are triggered when there are transitions between states for GPIO pins. The following options allow you set which GPIO pins' transitions will trigger alarms.

pins=*list_of_pins*
A list of GPIO pins that trigger alarms.

highpins=*list_of_highpins*
A list of GPIO pins that trigger alarms when a pin's signal is high.

lowpins=*list_of_lowpins*
A list of GPIO pins that trigger alarms when a pin's signal is low.

pin{*n*}={high|low|ignore}
This option is an alternative way to specify the action of a given GPIO pin, where *n* is the pin number.

high
The pin will trigger an alarm when the pin's signal is high.

low
The pin will trigger an alarm when the pin's signal is low.

ignore
The pin will not trigger an alarm.

The default is "ignore."

reminder={on|off}
Specifies the type of reminder sent.

on
An email or SNMP trap is sent periodically while the alarm-triggering event is active. The interval is based on the value of the "reminder_interval" option.

off
An email or SNMP trap is sent only when an alarm is triggered.

reminder_interval=*seconds*
The minimum reminder interval in seconds. Indicates how often an email or SNMP trap is sent when the "reminder" option is set to "on" and an alarm-triggering event is active.

trigger_interval=*seconds*
The minimum trigger interval in seconds. If the "reminder" option is set to "off," this option indicates the minimum amount of time that is allowed between alarm-triggered emails or SNMP traps.

Options for setting alarms in match mode

In match mode, an alarm will be triggered when a pattern is found in the stream of serial data. The following options are used for setting alarms in match mode:

mode=match
Sets the alarm to match mode.

match=*string*
A string that triggers an alarm if the data pattern is found in the incoming serial stream. The maximum length of this string is 40 characters, including escape sequences for special characters. For more details on the escape sequences, see "Entering Special Characters in String Values" on page 10. The maximum parsed length of this string is 10 characters. That is, this string must reduce down to a 10-character string when the escape sequences are processed.

Examples

Set an alarm to “on” state

```
set alarm state=on mailservip=10.0.0.1
```

Set alarm mode to GPIO mode

```
set alarm range=1 mode=gpio
```

Set alarm to designate which pins trigger alarm

```
set alarm range=1 pin2=high pin3=high
set alarm range=1 highpins=2,3
```

Set alarm to GPIO mode for specific pins and send SNMP traps

```
set alarm range=1 highpins=2,3 type=snmptrap
```

See also

- "set gpio" on page 63. The set gpio command determines whether pins act as GPIO input, GPIO output, or standard serial.
- "set snmp" on page 120
- "revert" on page 39

set autoconnect

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to establish an automatic connection (autoconnection) between the serial port and a remote network destination, and to display current autoconnect settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display autoconnect settings for the line on which they are logged in: “set permissions s-autoconnect=r-self”
- For a user to display autoconnect settings for any line: “set permissions s-autoconnect=read”
- For a user to display and set the autoconnect settings for the line on which they are logged in: “set permissions s-autoconnect=rw-self”
- For a user to display autoconnect settings for any line, and set the autoconnect settings for the line on which the user is logged in: “set permissions s-autoconnect=w-self-r”
- For a user to display and set the autoconnect settings on any line: “set permissions s-autoconnect=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure autoconnect

```
set autoconnect [port=range]
  [state={on|off}]
  [trigger={always|data|dcd|dsr}]
  [service={raw|rlogin|ssl|telnet}]
  [description={string}]
  [ipaddress=ipaddress]
  [ipport=ipport]
  [connect_on_string=string]
  [flush_string={on|off}]
  [keepalive={on|off}]
  [nodelay=on|off]
```

Display autoconnect settings

```
set autoconnect [port=range]
```

Options

port=*range*
Used to specify the serial port. Optional on a single-port device.

state={on|off}
Enables or disables the autoconnect feature.

on
Enables the autoconnect feature.

off
Disables the autoconnect feature.

The default is off.

If you are using the serial port for another purpose, it is recommended this value be set to “off.”

trigger={always|data|dcd|dsr|string}
Indicates which events from the serial port will trigger a network connection to occur.

always
The serial port will continually attempt to keep a connection to a remote network destination active.

data
The serial port will attempt a network connection whenever data arrives on the serial port.

dcd
The serial port will attempt a network connection whenever the serial port’s DCD signal goes high.

dsr
The serial port will attempt a network connection whenever the serial port’s DSR signal goes high.

string
A connection will be made upon detecting a particular sting, specified by the “connect_on_string” option, in the data from the serial port.

The default is “always.”

service={raw|rlogin|ssl|telnet}
The type of network connection that will be established.

raw
A connection without any special processing will occur.

rlogin
A remote login (rlogin) connection will occur.

ssl
A secure connection conforming to SSL (Secure Sockets Layer) Version 3 and Transport Layer Security (TLS) Version 1 will occur.

telnet
A connection with Telnet processing will occur.

The default is “raw.”

description=*string*
A name for descriptive purposes only.

ipaddress=*ipaddress*
The IP address of the network destination to which a connection will be made.

ipport=*ipport*
The TCP port of the network destination to which a connection will be made.

connect_on_string=*string*
When the value of the “trigger” option is string, this option specifies the string that must be found in the serial data in order for a connection to occur. The maximum length of this string is 32 characters, including escape sequences for special characters. For more details on the escape sequences, see "Entering Special Characters in String Values" on page 10. The maximum parsed length of this string is 32 characters. That is, this string must reduce down to a 32-character string when the escape sequences are processed.

flush_string={on|off}
Indicates whether the connect string, specified by the “connect_on_string” option, is flushed or sent over the newly established connection.

on
The connect string is flushed.

off
The connect string is sent over the newly established connection.

The default is on.

keepalive={on|off}
Indicates whether or not TCP keepalives will be sent for the specified range of clients. If set to on, keepalives will be sent, if it is off, keepalives will not be sent.

Configurable TCP keepalive parameters, for example, how many keepalives to send and when to send them are configured globally via the "set network" command (see "set network" on page 84).

nodelay={on|off}
Used to allow unacknowledged or smaller than maximum segment sized data to be sent.

Note: The “nodelay” option disables Nagle’s algorithm, which is on by default, for some TCP services. The purpose of Nagle's algorithm is to reduce the number of small packets sent. Briefly Nagle's algorithm says to hold on to outgoing data when there is either unacknowledged sent data or there is less than maximum segment size (typically around 1500 bytes for Ethernet) worth of data to be sent. It does a good job at keeping transmission efficient, but there are times where it is desirable to disable it.

Examples

Set autoconnect on with trigger

This example shows setting autoconnect to connect to the TCP port (2101) of the network IP destination when data arrives on the serial port.

```
set autoconnect state=on trigger=data ipaddress=10.0.0.1
  ipport=2101
```

Allow outgoing data that is either unacknowledged or is less than maximum segment size

```
set autoconnect port=1 nodelay=on
```

See also

- "revert" on page 39.
- "set network" on page 84.
- "set serial" on page 116.
- "set tcpserial" on page 123.

set buffer

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Configures buffering settings on a port, or displays the port buffer configuration settings on all ports. The port buffering feature allows you to monitor incoming ASCII serial data in log form.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the port buffering settings for the line on which they are logged in: “set permissions buffers=r-self”
- For a user to display the port buffering settings for any line: “set permissions buffers=read”
- For a user to display and set the port buffering settings for the line on which they are logged in: “set permissions buffers=rw-self”
- For a user to display the port buffering settings for any line, and set port buffering settings for the line on which the user is logged in: “set permissions buffers=w-self-r”
- For a user to display and set the port buffering settings on any line: “set permissions buffers=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure port buffering

```
set buffer [clear] [port=number] [size=number]
  [state={on|off|pause}]
```

Display the port buffering configuration

```
set buffer [port=port]
```

Options

clear

Clears the contents of the specified buffer.

port

The port or ports to which the command applies.

size

The size in kilobytes to configure the buffer. Settings are configurable in 2-kilobyte increments. The maximum size is 64 kilobytes. The default is 32 kilobytes.

state
The buffering state, which can be any of the following:

on
The data will be buffered.

off
The data will not be buffered and all data will be cleared from the buffer.

pause
The data will not be buffered, but data in the buffer will not be cleared.

Examples

Display port buffer configuration for all ports

```
set buffer
```

Configure buffers

In this example, the set buffer command sets the buffer state for port 1 to on mode and the buffer size to 64 kilobytes.

```
set buffer port=1 state=on size=64
```

See also

"revert" on page 39.

set devicesecurity

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to set or display the Connectware Device Protocol device security settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the Connectware Device Protocol device security settings: “set permissions s-devicesecurity=read”
- For a user to display and set Connectware Device Protocol device security settings: “set permissions s-devicesecurity=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure Connectware Device Protocol device security settings

```
set devicesecurity [identityverificationform={simple|crypto}]
  [discoverycodingscheme={nonenone|aesmd5|nonemd5}]
  [messagepassingscheme= {nonenone|aesmd5|nonemd5}]
  [clientkeysize={default|128bit|192bit|256bit}]
  [keyencryptingkey=hexstring] [keygeneratingkey=hexstring]
  [keyseed=hexstring]
```

Display current device security settings

```
set devicesecurity
```

Options

identityverificationform={simple| crypto}

Used to specify the type of authentication used by the server.

simple

The device will send its device ID to the server.

crypto

The device and the server will perform a cryptographic challenge-response handshake.

discoverycodingscheme={nonenone|aesmd5|nonemd5}
Used to specify the method of encryption used during the discovery phase of the connection. The first option specifies the encryption mode, the second option specifies the authentication mode.

nonenone
No encryption and no authentication.

aesmd5
AES encryption and MD5 authentication.

nonemd5
No encryption and MD5 authentication.

Only the “nonenone” value is allowed if the “identityverificationform” option is set to “simple.” The “aesmd5” and “nonemd5” values are permitted only if “crypto” is used for “identityverificationform.”

messagepassingscheme= {nonenone|aesmd5|nonemd5}
Used to specify the method of encryption used during the message passing phase of the connection. The first option specifies the encryption mode, the second option specifies the authentication mode.

nonenone
No encryption and no authentication.

aesmd5
AES encryption and MD5 authentication.

nonemd5
No encryption and MD5 authentication.

Only the “nonenone” value is allowed if the “identityverificationform” option is set to “simple.” The “aesmd5” and “nonemd5” values are permitted only if “crypto” is used for “identityverificationform.”

clientkeysize={default|128bit|192bit|256bit}
Used to specify the key size used for AES encryption.

default
Use the client default key size.

128bit
Use a 128-bit key.

192bit
Use a 192-bit key.

256bit
Use a 256-bit key.

keyencryptingkey=*hexstring*
This key is a shared secret between the device server and Connectware Manager. The value must be generated by Connectware Manager. It is used when the “identityverificationform” option is set to “crypto.”

keygeneratingkey=*hexstring*

keyseed=*hexstring*

Examples

Set device security settings

```
set devicesecurity identityverificationform=crypto
  discoverycodingscheme=aesmd5 messagepassingscheme=aesmd5
  clientkeysize=256bit
  keyencryptingkey=0x0123456789abcdef01234567890abcdef01234567890
  abcdef0123456789abcdef
```

Display device security settings

```
set devicesecurity
```

See also

"revert" on page 39

set ethernet

Devices supported

This command is supported in Digi Connect SP, Digi Connect EM, and Connect ME devices.

Purpose

Configures, adjusts, and displays Ethernet communications parameters.

Required permissions

Permissions must be set to “set permissions s-ethernet=read” to display Ethernet communications parameters, and “set permissions s-ethernet=rw” to display and configure Ethernet communications parameters. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure Ethernet communications parameters

```
set ethernet [duplex={half|full|auto}] [speed={10|100|auto}]
```

Display Ethernet communications parameters

```
set ethernet
```

Options

duplex

Determines the mode the Digi device uses to communicate on the Ethernet network. Specify one of the following:

half

The device communicates in half-duplex mode.

full

The device communicates in full-duplex mode.

auto

The device senses the mode used on the network and adjusts automatically.

The default is “half.” If one side of the Ethernet connection is using auto, the other side can set the duplex value to whatever is desired. If one side uses a fixed value (for example, half-duplex), the other side has to use the same.

speed

Configures the Ethernet speed the Digi device will use on the Ethernet network. Specify an appropriate setting for your Ethernet network, which can be one of the following:

10

The device operates at 10 megabits per second (Mbps) only.

100

The device operates at 100 Mbps only.

auto

The device senses the Ethernet speed of the network and adjusts automatically.

The default is “auto.” If one side of the Ethernet connection is using auto (negotiating), the other side can set the Ethernet speed to whatever value is desired. Or, if the other side is set for 100 Mbps, this side must use 100 Mbps.

Examples

Configure 100 Mbps Ethernet speed

```
set ethernet speed=100
```

See also

"set network" on page 84 to configure network communications parameters.

set forwarding

Devices supported

This command is supported in Digi Connect WAN devices only.

Purpose

Enables or disables IP routing, or forwarding of IP datagrams, between network interfaces. IP forwarding must be enabled to allow the Network Address Table and port forwarding features to work properly.

Required privileges

To use this command, permissions must be set to one of the following:

- For a user to display the forwarding settings:
  “set permissions s-router=read”
- For a user to display and set forwarding settings:
  “set permissions s-router=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set forwarding settings

```
set forwarding [ipforwarding={on|off}]
```

Display forwarding settings

```
set forwarding
```

Options

ipforwarding={on|off}

Enables or disables IP forwarding.

on

Enables IP forwarding.

off

Disables IP forwarding.

Examples

Enable IP forwarding

```
set forwarding ipforwarding=on
```

See also

- "set nat" on page 81
- "revert" on page 39

set gpio

Devices supported

This command is supported Digi Connect EM, Digi Connect Wi-EM, Digi Connect ME, Digi Connect Wi-ME, Digi Connect WAN, and Digi Connect RG devices.

Purpose

Used to:

- Configure General Purpose I/O (GPIO) pins. In normal operation, the GPIO pins are used for the serial CTS, DCD, DSR, DTR, and RTS pins. The set gpio command allows these GPIO pins to be used for different purposes.
- Display current GPIO pin settings.

Required permissions

Permissions must be set to “set permissions s-gpio=read” to display GPIO pin settings, and “set permissions s-ethernet=rw” to display and configure GPIO pins. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure GPIO pins

```
set gpio range={1-n} mode={serial|input|output}
```

Display current GPIO pin settings

```
set gpio [range={1-n}]
```

Options

range={1-*n*}

Used to specify the index of the GPIO pin to manipulate, where *n* is the maximum number of GPIO pins on the device.

mode={serial|input|output}

The mode of operation of the GPIO serial pin.

serial

Indicates normal serial operation.

input

Allows input of GPIO signals. This is used in conjunction with alarms to trigger emails or SNMP traps indicating a particular signal change.

output

Allows output of GPIO signals. Currently, output of GPIO signals is not supported in the command-line interface. The web user interface can be used to toggle the output of GPIO signals between high and low.

The default is “serial” for all pins.

Default serial signal settings for GPIO pins

The default serial signal settings for the GPIO pins on a Digi Connect device are as follows. Depending on the device, there are five or nine GPIO pins.

Pin Number	Default Serial Signal	Signal Direction
GPIO 1	DCD	Input
GPIO 2	CTS	Input
GPIO 3	DSR	Input
GPIO 4	RTS	Output
GPIO 5	DTR	Output
GPIO 6	TXD	Output
GPIO 7	RXD	Input
GPIO 8	TXD for port 2	Output
GPIO 9	RXD for port 2	Input

Examples

Changing the operation of the GPIO signal pins

The following command changes GPIO pins 1-5 to allow input of GPIO signals.

```
set gpio range=1-5 mode=input
```

See also

- "revert" on page 39.
- "send" on page 43, for details on setting up alarms that issue email messages or SNMP traps when GPIO pins change.

set group

Devices supported

This command is supported in Digi Connect WAN and Digi Connect RG devices only.

Purpose

Used to create and manage user groups. You can use “set group” to do the following:

- Add a group. A maximum of 32 groups can be defined.
- Remove groups.
- Change group configuration attributes.
- Display group configuration attributes.

In order to apply a common set of user settings to more than one user, it may be desirable to create a group with the required settings and then associate that group with multiple users. If a user is a member of one or more groups, the user's effective permissions are the maximum of the permissions of the user and all of the groups to which the user belongs.

Required permissions

Permissions must be set to “set permissions s-group=read” to display group configuration attributes, and “set permissions s-group=rw” to display and set group configuration attributes. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Add a group

```
set group add id=number newname=string
```

Remove a group

```
set group remove {id=range|name=string}
```

Change group configuration attributes

```
set group {id=range|name=string} [newname=string]
  [commandline={on|off}] [menu={none|index|name}]
  [defaultaccess={none|commandline|menu}]
```

Display group configuration attributes

```
set group {id=range|name=string}
```

Display group configuration attributes for all groups

```
set group
```

Options

add
Add a group. New groups are created with no permissions. A maximum of 32 groups can be defined.

remove
Remove groups.

id=*range*
Specifies the ID or range of IDs of the groups to be acted on.

name= *string*
Specifies the name of the group to be acted on.

newname=*string*
Specifies a new group name.

commandline={on|off}
Specifies whether the users in the group are allowed to access the command line of the device.

on
Users can access the command line interface.

off
Users can not access the command line interface.

The default is “on.”

menu={none|index|name}
Specifies whether the users in the group are allowed to access the custom menu interface of the device and defines the custom menu that the users will have displayed.

none
Users are not allowed to access the custom menu interface.

index
Users are allowed to access the custom menu interface and will be displayed the custom menu at the specified index

name
Users are allowed to access the custom menu interface and will be displayed the custom menu using the specified name.

The default is “none.”

defaultaccess={none|commandline|menu}
Specifies the default access method and interface that users in the group will be given upon logging into the device. Note that the specified interface must be enabled for the group and have a valid menu if specified.

none
The group has no default access to the device and the users are not allowed to access either the command line interface or the custom menu interface without explicitly specifying the access method.

commandline
The users will be displayed and given access to the command line interface assuming the group has command line access rights enabled.

menu
The users will be displayed and given access to the custom menu interface and be displayed the custom menu as specified by the “menu” option.

The default is “commandline.”

Default permissions

When a new group is created, it has no permissions.

Examples

Add a new group

```
set group add newname=gurus id=4
```

Remove group 7

```
set group remove id=7
```

Set a new group name

```
set group id=4 newname=gurus
```

Set a group with command line access rights

```
set group id=4 commandline=on defaultaccess=commandline
```

Set a group with custom menu access rights to access the “my_menu” custom menu

```
set group name=gurus menu=my_menu defaultaccess=menu
```

See also

- "newpass" on page 35
- "set menu" on page 69
- "set permissions" on page 86
- "set user" on page 131

set host

Device support

This command is supported in all Digi Connect Family devices.

Purpose

Configures a name for the device, also known as a host name, or displays the current host name for the device.

Required permissions

Permissions must be set to “set permissions s-host=read” to display the current host name, and “set permissions s-host=rw” to display and set the host name. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure a name for the device

```
set host name=name
```

Display the current host name

```
set host
```

Options

name=*name*

The name for the device. The name can be up to 32 characters long, and can contain any alphanumeric characters, and can also include the underscore (_) and hyphen (-) characters.

set menu

Devices supported

This command is currently not supported in any Digi Connect Family devices.

Purpose

The “set menu” command is used to create and modify custom menus.

There are several modes of using the “set menu” command:

- To update global settings for custom menus.
- To add or update custom menus.
- To add or update individual items in a custom menu.

Required permissions

Permissions must be set to “set permissions s-menu=read” to display custom menu settings, and “set permissions s-menu=rw” to display and set custom menu settings. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Updating Global Settings

```
set menu [quit_key=key] [quit_label=string] [previous_key=key]
  [previous_label=string] [presskey_label=string]
```

Adding/Updating Custom Menus

```
set menu range=1-32|name=string [newname=string]
  [title=string] [subtitle=string] [sortby={none|key|label}]
  [columns=1-5] [direction={horizontal|vertical}]
```

Adding/Updating Custom Menu Items

```
set menu range={1-32)|name=string} [item=1-32] [key=key]
  [label=string] [{command=string|submenu=string}]
```

Options

Options for Updating Global Settings

quit_key=*key*

The key and text displayed on the custom menu next to the **quit_label** that allows a user to quit the custom menu and close the associated connection. The menu is closed when this key is pressed by the user. The *key* is either 0-9, a-z, or A-Z. The default is “Q.” The *key* is case insensitive; therefore, the keys “A” and “a“ will act the same.

quit_label=*string*

The text displayed on the custom menu next to the **quit_key** that allows a user to quit and close the custom menu. The string is a short description. If the string contains spaces, enclose it in double quotes. The default is “Quit.”

previous_key=*key*
The key and text displayed on the custom menu next to the “previous_label” that allows a user to return to the previous menu when they have previously selected a submenu. This option is only shown and only valid when the displayed menu is an active submenu such that pressing this key will return the user to the original menu. The default is “R.“ The *key* is case insensitive; therefore, the keys “A” and “a“ will act the same.

previous_label=*string*
The text displayed on the custom menu next to the “previous_key” that allows a user to return to the previous menu when the current menu is a submenu that was displayed when issuing a submenu command on another menu. If the string contains spaces, enclose it in double quotes. The default is “Return to Previous Menu.”

presskey_label=*string*
The text displayed after a user has finished an issued command. After the user selects an option that executes a command, the command output will be displayed until the command completes. At this time, processing will be stopped and this text will be shown to inform the user to press any key in order to continue. After a key is pressed, the custom menu will once again be shown. If the string contains spaces, enclose it in double quotes. The default is “Press any key to continue...”

Options for Adding/Updating Custom Menus

range=1-32
The index of the custom menu to create or update. A maximum of 32 menus can be created, and these menus are assigned index values 1 to 32. The index is solely used as a way to identify a custom menu by direct index without having to type in a complete name. When creating a new menu, both the “range” and the “newname” options must be specified. When updating a custom menu, only the “range” or the “name” option must be specified, but not both.

name=*string*
A short descriptive string used to identify a menu. The string is used only to identify a menu when linking a user or other custom menu to this menu. This option can be used rather than the “range” option when updating a custom menu. If the string contains spaces, enclose it in double quotes.

newname=*string*
A short descriptive string used to identify a menu. This option is used to create a new menu or to change the name of an existing menu. When a new menu is being created, this option must be specified along with the “range” option.

When an existing menu name is being changed, this option must be specified along with either “range” or “name,” where “name” is the current name of the menu.

If the string contains spaces, enclose it in double quotes.

title=*string*

subtitle=*string*
The title and optional subtitle for a particular menu. The title is displayed above the custom menu and the subtitle, if specified, is displayed immediately below it. These strings are shown to the user accessing the custom menu as a means to identify, explain, or describe a custom menu. Note that when creating a new custom menu, the “title” option is required. If the string contains spaces, enclose it in double quotes.

sortby={none|key|label}
The method by which menu items for the custom menu are ordered and displayed to the user.

none
Organizes the menu items and display them in the order in which they are defined.

key
Sorts the menu items by the keys assigned to the menu items. The sort is case-insensitive.

label
Sorts the menu items based on an alpha-numeric sort of the labels assigned to the menu label.

columns=1-5
The number of columns to display the menu items in to the user. This option is used in order to help avoid scrolling by the user. For instance, a custom menu with many entries may want to display the menu items over 3 columns whereas a custom menu with only a few menu items will appear better using single column. Note that when using multiple columns an attempt should be made to avoid long menu item labels to help avoid possible horizontal scrolling. The default is 1.

direction={horizontal|vertical}
The direction in which to display and arrange menu items. This option only applies when the value of the “columns” option is more than 1 since a single column has no sense of direction other than vertical.

horizontal
The items will be displayed in order left-to-right first, then vertical.

vertical
The items will be displayed top-to-bottom first, then left-to-right.

In other words, the following graphic on the left is done using horizontal direction while the one on the right uses vertical.

A	B	C	A	D	G
D	E	F	B	E	H
G	H	I	C	F	I

The default is “horizontal.”

Options for Adding/Updating Custom Menu Items

range=1-32
The index of the custom menu to add menu items to. Either the “range” or “name” option can be specified to add or update menu items for a particular menu.

name=*string*
The name of the custom menu to add or update menu items for. This option can be used rather than “range**.”** If the string contains spaces, enclose it in double quotes.

item=1-32
The index of the menu item to add or update. There are a maximum of 32 menu items for a particular custom menu and are indexed 1 to 32.

key=*key*
The key to assign to the menu item. This key is displayed on the custom menu next to the “label” value, and is used to select the particular menu item. The user presses this key to select the corresponding menu item. The key must be unique to the custom menu, so that no two menu items for the same custom menu share the same key. The keys assigned to the global settings for “quit_key” and “previous_key” are reserved, and may not be assigned to a menu item.

label=*string*
The text displayed on the custom menu next to the “key” value that describes the action that the menu item will take. When using multiple columns with a custom menu (specified by the “columns” option), it is in the best interest to keep these strings short in length to avoid scrolling. If the string contains spaces, enclose it in double quotes.

command=*string*
The command that is executed when this menu item is selected. This may be any valid command on the CLI (command line interface). The user accessing the custom menu must have the necessary permissions for the supplied command in order to properly execute the command. Note that this option may not be combined with the “submenu” option. If the string contains spaces, enclose it in double quotes.

submenu=*string*
The menu displayed to the user upon selecting the menu item. Submenus allow multi-level menus to exist, and grouping of information so that a user may access one or more submenus each with their own distinct menu items. The string is the menu name identifying the custom menu to link to. The menu must have already been created. Note that this option may not be combined with the “command” option. If the string contains spaces, enclose it in double quotes.

Examples

Updating Global Settings

```
set menu quit_key=Q quit_label=”Quit” previous_key=R
  previous_label=”Return to Previous Menu”
  presskey_label=”Press any key to continue...”
```

Adding/Updating Custom Menus

Adding a new custom menu (implies that index 2 is not yet created):

```
set menu range=2 newname=my_menu title=”My Menu” sortby=key
  columns=2 direction=horizontal
```

Updating an existing menu with a new menu name:

```
set menu name=my_menu newname=admin_menu
```

Updating an existing menu with new settings:

```
set menu name=admin_menu title=”Administration Menu”
  subtitle=”Select an Option”
```

Adding/Updating Custom Menu Items

Adding a menu item for a custom menus (implies that index 1 is not yet created):

```
set menu name=admin_menu item=1 key=1 label=”Connect Port 1”
  command=”connect 1”
```

Updating a menu item to display another submenu:

```
set menu name=my_menu item=2 key=A label=”Go to Admin Menu”
  submenu=”admin_menu”
```

See also

- "set user" on page 131.
- "revert" on page 39.

set mgmtconnection

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to set or display the Connectware Device Protocol connection settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the Connectware Device Protocol connection settings: “set permissions s-mgmtconnection=read”
- For a user to display and set Connectware Device Protocol connection settings: “set permissions s-mgmtconnection=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure Connectware Device Protocol connection settings

```
set mgmtconnection [connenabled={on|off}]
  [conntype={client|timed|serverinitiated}]
  [timedperiod=period]
  [timedoffset={immediate|oneperiod|randomtime}]
  [lkaupdateenabled={on|off}]
  [clntreconntimeout={none|timeout]
  [svraddr[1-8]=string]
  [secidx[1-8]=index]
```

Display Connectware Device Protocol connection settings

```
set mgmtconnection
```

Options

connenabled={on|off}

Used to specify whether or not this instance is enabled for use.

on

Enables this instance for use.

off

Disables this instance for use.

conntype={client|timed|serverinitiated}

Used to specify the connection type.

client

This is a client connection.

timed

This is a timed connection.

serverinitiated

This is a server-initiated connection.

timedperiod=*period*
For a timed connection, this option is used to specify the time interval in minutes between the device server's attempts to connect to the Connectware Manager server. If a device server is already in a connection to a Connectware Manager when the time interval expires, it will not start a new connection at that time. Rather, the device server will start a new timed period timer, and it will again check whether it needs to connect to the Connectware Manager when that new timer expires.

timedoffset={immediate|oneperiod|randomtime}
For a timed connection, this option is used to specify when the first timed connection (to a Connectware Manager) should be attempted after the device server boots.

immediate
Attempt to connect immediately.

oneperiod
Wait one full timed period, then attempt to connect.

randomtime
Wait some random interval of time, between 0 and the full timed period, then attempt to connect.immediate

lkaupdateenabled={on|off}
In conjunction with a server-initiated connection, this option is used to enable a connection to a Connectware Manager server for the purpose of informing that server of the IP address of the device server. This permits the Connectware Manager to connect back to the device server, or to dynamically update a DNS with the IP address of the device.

on
Enables "last known address" connections to the Connectware Manager.

off
Disables "last known address" connections to the Connectware Manager.

clntreconntimeout={none|*timeout*}
Used to specify the client reconnect timeout value in seconds. If client-initiated connections are enabled, the device server will wait this amount of time after a connection to the Connectware Manager is ended, and then it will reconnect to the Connectware Manager. The keyword “none” turns off the timeout feature.

svraddr[1-8]=*string*
Used to specify one of eight possible Connectware Manager server addresses. When the device server attempts to connect to a Connectware Manager, it tries the server addresses in this list in the order 1-8.

secidx[1-8]=*index*
Used to link a server address with a Device Security entry.

Examples

Set values for the client connection

```
set mgmtconnection connenabled=on conntype=client
  clntreconnecttimeout=50
```

Display current connection settings

```
set mgmtconnection
```

See also

"set devicesecurity" on page 57
"revert" on page 39

set mgmtglobal

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to set or display the Connectware Device Protocol global settings, or revert the device ID to factory settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the Connectware Device Protocol global settings: “set permissions s-mgmtglobal=read”
- For a user to display and set Connectware Device Protocol global settings: “set permissions s-mgmtglobal=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure Connectware Device Protocol global settings

```
set mgmtglobal [deviceid={hex string}]
```

Display Connectware Device Protocol global settings

```
set mgmtglobal
```

Revert the Device ID to factory settings

```
set mgmtglobal revertdeviceid
```

Options

deviceid={*hex string*}

Used to specify the device ID. The device ID is 32 hexadecimal digits, preceded by the characters “0x.”

revertdeviceid

Used to revert the device id to factory settings. If the device’s MAC address is GG:HH:JJ:KK:LL:MM, then the device ID is set to 0x0000000000000000GGHHJJ****KKLLMM.

Examples

Set the device id

```
set mgmtglobal deviceid=0x0123456789abcdef0123456789abcdef
```

See also

"revert" on page 39

set mgmtnetwork

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to set or display the Connectware Device Protocol network settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the Connectware Device Protocol network settings: “set permissions s-mgmtnetwork =read”
- For a user to display and set Connectware Device Protocol network settings: “set permissions s-mgmtnetwork =rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure Connectware Device Protocol network settings

```
set mgmtnetwork
   [networktype={modemppp|ethernet|802.11}]
   [connectionmethod={auto|none|mt|mdh|proxy}]
   [proxyaddress=string]
   [proxyport=port]
   [proxylogin=string]
   [proxypassword=string]
   [proxypersistentconnection={on|off}]
   [mtrxkeepalive=time]
   [mttxkeepalive=time]
   [mtwaitcount=count]
   [mdhrxkeepalive=time]
   [mdhtxkeepalive=time]
   [mdhwaitcount=count]
```

Display Connectware Device Protocol network settings

```
set mgmtnetwork
```

Options

[networktype={modemppp|ethernet|802.11}

Used to specify which type of network to which this instance applies.

modemppp

This instance applies to the modem PPP network.

ethernet

This instance applies to the ethernet network.

802.11

This instance applies to the 802.11 network.

connectionmethod={auto|none|mt|mdh|proxy}
Used to specify the Connectware Device Protocol firewall traversal method.

auto
Automatically detect the connection method.

none
No firewall; connect using TCP.

mt
Connect using TCP.

mdh
Connect using HTTP.

proxy
Connect using HTTP over proxy.

proxyaddress=*string*
Used to specify the proxy host address when connection method is proxy

proxyport=*port*
Used to specify the proxy host port when connection method is proxy.

proxylogin=*string*
Used to specify the login string when connection method is proxy.

proxypassword=*string*
Used to specify the proxy password when connection method is proxy.

proxypersistentconnection={on|off}
Used to specify whether the device server should attempt to use HTTP persistent connections when the connection method is "proxy". Not all HTTP proxies correctly handle HTTP persistent connections. The use of persistent connections can improve performance of the exchange of messages between the device server and Connectware Manager, when that connection is HTTP/proxy. The reason for this is that the same HTTP connection can be reused for multiple consecutive HTTP requests and replies, eliminating the overhead of establishing a new TCP connection for each individual HTTP request/reply, then closing that connection when the request is complete.

on
The device server should attempt to use HTTP persistent connections.

off
The device server should not attempt to use HTTP persistent connections.

mtrxkeepalive=*time*
Used to specify the transmit keep alive time when connection method is MT.

mttxkeepalive=*time*
Used to specify the receive keep alive time when connection method is MT.

mtwaitcount=*count*
Used to specify the wait count when connection method is MT.

mdhrxkeepalive=*time*
Used to specify the transmit keep alive time when connection method is MDH.

mdhtxkeepalive=*time*
Used to specify the receive keep alive time when connection method is MDH.

mdhwaitcount=*count*
Used to specify the wait count when connection method is MDH.

Examples

Set instance 1 for proxy connection

```
set mgmtnetwork connectiontype=modemppp connectionmethod=proxy
  proxyaddress=”What goes here?” proxyport=40002
  proxylogin=”johnsmith” proxypassword=”testpass”
  proxypersistentconnection=off
```

Set instance 2 for mdh connection

```
set mgmtnetwork connectiontype=ethernet connectionmethod=mdh
  mdhrxkeepalive=100 mdhtxkeepalive=110 mdkwaitcount=15
```

Display current Connectware Device Protocol network settings

```
set mgmtnetwork
```

See also

"revert" on page 39

set nat

Devices supported

This command is supported in Digi Connect WAN devices only.

Purpose

Used to set or display Network Address Translation (NAT) and port/protocol forwarding settings.

Note that at this time, the only IP protocol for which protocol forwarding is supported is Generic Routing Encapsulation (GRE). Port forwarding is supported for the TCP and UDP protocols.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the NAT and port/protocol forwarding settings: “set permissions s-router=read”
- For a user to display and set the NAT and port/protocol forwarding settings: “set permissions s-router=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set NAT and port/protocol forwarding settings

```
set nat [enabled={on|off}]
  [prenabled[1-4]={on|off}]
  [prnumber[1-4]=gre]
  [prtype[1-4]=type]
  [prip[1-4]=ipaddress]
  [poenabled[1-64]={on|off}]
  [poproto[1-64]={tcp|udp}]
  [poexternal[1-64]=port]
  [pointernal[1-64]=port]
  [poip[1-64]=ipaddress]
```

Display NAT and port/protocol forwarding settings

```
set nat
```

Options

enabled={on|off}

Used to enable or disable NAT. Note that IP forwarding must be enabled by the “set forwarding” command for NAT to work.

on

Enable NAT.

off

Disable NAT.

prenabled[1-4]={on|off}

Used to enable one of the four protocol-forwarding entries.

on

Enable this protocol forwarding entry.

off

Disable this protocol forwarding entry.

prnumber[1-4]=gre
Used to specify the IP protocol whose packets will be forwarded for this entry. The keyword “gre” indicates that the Generic Routing Encapsulation (GRE) protocol will be forwarded. At this time, GRE is the only protocol supported by the protocol-forwarding feature.

prtype[1-4]=*type*
Used to specify the GRE payload type to forward for this entry. A value of 0 (zero) means all payload types will be forwarded (this is recommended).

For example, a value of 2048 (hexadecimal 800) means only IP payload will be forwarded.

prip[1-4]=*ipaddress*
Used to specify the IP address to which GRE packets will be forwarded.

poenabled[1-64]={on|off}
Used to enable or disable one of the 64 port forwarding entries.

on
Enable this port forwarding entry.

off
Disable this port forwarding entry.

poproto[1-64]={tcp|udp}
Used to specify the IP protocol associated with this port forwarding entry.

tcp
This entry specifies a TCP port to be forwarded.

udp
This entry specified a UDP port to be forwarded.

poexternal[1-64]=*port*
Used to specify the external (or public) port that will be forwarded for this entry.

pointernal[1-64]=*port*
Used to specify the internal (or private) port to which packets will be forwarded for this entry. This value is a port number on the host whose IP address is specified by the “poip” option value for this entry.

poip[1-64]=*ipaddress*
Used to specify the IP address of the host to which packets will be forwarded for this entry.

Examples

Enable NAT and specify settings for port forwarding entry 1

This example command will enable the forwarding of TCP packets received at port 4009 of the public (PPP) interface of the device server, to TCP port 7008 of the host whose IP address is 143.191.1.228 on the Ethernet side of the device server.

```
set nat enabled=on poenabled1=on poproto1=tcp poexternal=4009
  pointernal=7008 poip=143.191.1.228
```

Display NAT and port/protocol forwarding settings

```
set nat
```

See also

"set forwarding" on page 62

"revert" on page 39

set network

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to set general network configuration options and display current network configuration options.

Required permissions

Permissions must be set to “set permissions s-network=read” to display network configuration attributes, and “set permissions s-network=rw” to display and set network configuration attributes. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set general network configuration options

```
set network [gateway=gateway ip]
   [ip=device ip]
   [submask=device submask]
   [static={on|off}]
   [dhcp={on|off}]
   [autoip={on|off}]
   [idle=10-86400]
   [probe_count=5-30]
   [probe_interval=10-75]
   [garbage_byte={on|off}]
   [override_dhcp={on|off}]
```

The keepalive options (“idle,” “probe_count,” “probe_interval,” “garbage_byte,” and “override_dhcp”) should be configured for various services that are configured by “set service keepalive={on|off},” or clients such as autoconnect (“set autoconnect keepalive={on|off}”).

Display current network configuration options

```
set network
```

Options

gateway=*gateway ip*
Sets the network gateway IP address.

ip=*device ip*
Sets the device IP address when DHCP is off. This option is only applicable if the “static” option is set to “on.”

submask=*device submask*
Sets the device submask address when DHCP is off. This option is only applicable if the “static” option is set to “on.”

The following three IP address options have a precedence. That is, if all three options are turned on, the order of precedence is: “static,” “dhcp,” “autoip.”

static={on|off}
When enabled, the device uses the specified IP address, gateway address, and submask. The default is off.

dhcp={on|off}
When enabled, the device attempts to use the DHCP protocol to find an

IP address, gateway address, and submask. The default is on.

autoip={on|off}
When enabled, the device attempts to use the Auto IP protocol to find an IP address, gateway address, and submask. The default is on.

idle=10-86400
The amount of time, in seconds, to wait while not receiving TCP packets before sending out a keepalive probe.

probe_count=5-30
The number of TCP keepalive probes (specially formatted TCP frames) to send out before closing the TCP connection.

probe_interval=10-75
The amount of time, in seconds, to wait between sending TCP keepalive probes.

garbage_byte={on|off}
The garbage byte affects the frame; that is, the garbage byte sends a byte of data that has already been acknowledged by the other side. This option is necessary to work with some vendors' TCP implementations.

override_dhcp={on|off}
Indicates that keepalive options given by DHCP should be ignored, and the statically configured ones used instead.

Examples

Manually set the device IP address

```
set network ip=10.0.0.1 gateway=255.255.255.0
  submask=255.255.255.0 dhcp=off static=on autoip=off
```

Use DHCP to find an IP address, gateway address, and submask

```
set network static=off dhcp=on
```

Use DHCP or the Auto IP protocol to automatically configure network settings

```
set network static=off dhcp=on autoip=on
```

See also

- "revert" on page 39
- "set autoconnect" on page 51
- "set ethernet" on page 60.
- "set service" on page 118
- "set wlan" on page 136.

set permissions

Devices supported

This command is supported in all Digi Connect Family devices. However, not all options are supported by Digi Connect devices. For example, s-ethernet is only supported in the wired devices.

Purpose

Used to set permissions associated with various services and command-line interface (CLI) commands, or display current permission settings.

Commands without permissions

There are no permissions associated with the following commands:

- close
- exit
- help
- info
- quit

Permissions for the “revert” command

For the “revert” command, the permissions associated with the various “set” commands are used, except for the “revert all” command variant, which uses a different mechanism that bypasses the individual “set” commands.

Required permissions

Permissions must be set to “set permissions s-permissions=read” to display permissions, and “set permissions s-permissions=rw” to display and change permissions. When permissions are set to “set permissions s-permissions=rw,” a user cannot set another user’s permission level higher than their own level, nor can they raise their own permission level.

Syntax

Set permissions

```
set permissions [type={user|group}]
   {id=range|name=string}
   [backup={none|execute}]
   [boot={none|execute}]
   [connect={none|execute}]
   [display={none|execute}]
   [buffers={none|r-self|read|rw-self|w-self-r|rw}]
   [kill={none|execute}]
   [newpass={none|rw-self|rw}]
   [ping={none|execute}]
   [reconnect={none|execute}]
   [revert-all={none|execute}]
   [rlogin={none|execute}]
   [s-accesscontrol={none|read|rw}]
   [s-alarm={none|read|rw}]
   [s-autoconnect={none|r-self|read|rw-self|w-self-r|rw}]
   [s-devicesecurity={none|read|rw}]
   [s-ethernet={none|read|rw}]
   [s-gpio={none|read|rw}]
   [s-group={none|read|rw}]
   [s-host={none|read|rw}]
   [s-menu={none|read|rw}]
   [s-mgmtconnection={none|read|rw}]
   [s-mgmtglobal={none|read|rw}]
   [s-mgmtnetwork={none|read|rw}]
   [s-network={none|read|rw}]
   [s-permissions={none|read|rw}]
   [s-pmodem={none|r-self|read|rw-self|w-self-r|rw}]
   [s-ppp={none|read|rw}]
   [s-profile={none|r-self|read|rw-self|w-self-r|rw}]
   [s-rciserial={none|r-self|read|rw-self|w-self-r|rw}]
   [s-router={none|read|rw}]
   [s-rtstoggle={none|r-self|read|rw-self|w-self-r|rw}]
   [s-serial={none|r-self|read|rw-self|w-self-r|rw}]
   [s-service={none|read|rw}]
   [s-snmp={none|read|rw}]
   [s-system={none|read|rw}]
   [s-tcpserial={none|r-self|read|rw-self|w-self-r|rw}]
   [s-term={none|read|rw}]
   [s-udpserial={none|r-self|read|rw-self|w-self-r|rw}]
   [s-user={none|read|rw}]
   [s-wlan={none|read|rw}]
   [status={none|read|rw}]
   [telnet={none|execute}]
   [who={none|execute}]
   [webui={none|execute}
   [filesys={none|read|rw}]
```

Display current permission settings

```
set permissions
```

Options

type={user|group}
Specifies whether the command applies to users or groups. This option defaults to “user.”

id=*range*
Specifies the ID or the range of IDs of the users or groups to be acted on. If omitted, the “name” option must be specified.

name=*string*
Specifies the name of the user or group to be acted on. If omitted, the “id” option must be specified.

backup={none|execute}
Specifies permissions for the “backup” command.

none
The command cannot be executed.

execute
The command can be executed.

boot={none|execute}
Specifies permissions for the “boot” command.

none
The command cannot be executed.

execute
The command can be executed.

buffers={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “display buffers” and “set buffer” commands.

none
Neither command can be executed.

r-self
The user can execute the "display" portions for both commands if the user is logged in on the specified line.

read
The user can execute the "display" portions for both commands for any line.

rw-self
The user can execute the "display" and "set" portions for both commands if the user is logged in on the specified line.

w-self-r
The user can execute the "display" portions for both commands for any line and the "set" portions for both commands if the user is logged in on the specified line.

rw
The user can execute the "display" and "set" portions for both commands for any line.

connect={none|execute}
Specifies permissions for the “connect” command.

none
The command cannot be executed.

execute
The command can be executed.

display={none|execute}
Specifies permissions for the “display” command.

none
The command cannot be executed.

execute
The command can be executed.

kill={none|execute}
Specifies permissions for the “kill” command.

none
The command cannot be executed.

execute
The command can be executed.

newpass={none|rw-self|rw}
Specifies permissions for the “newpass” command.

none
The command cannot be executed.

rw-self
The user can set their own password.

rw
The user can set any user’s password.

ping={none|execute}
Specifies permissions for the “ping” command.

none
The command cannot be executed.

execute
The command can be executed.

reconnect={none|execute}
Specifies permissions for the “reconnect” command.

none
The command cannot be executed.

execute
The command can be executed.

revert-all={none|execute}
Specifies permissions for the “revert all” command. Individual “revert” commands are governed by the permissions for that particular command, but “revert all” uses a different mechanism that bypasses the individual commands.

none
The user cannot execute the command.

execute
The user can execute the command.

rlogin={none|execute}
Specifies permissions for the “rlogin” command.

none
The command cannot be executed.

execute
The command can be executed.

s-accesscontrol={none|read|rw}
Specifies permissions for the “set accesscontrol” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-alarm={none|read|rw}
Specifies permissions for the “set alarm” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-autoconnect={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set autoconnect” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-devicesecurity={none|read|rw}
Specifies permissions for the “set devicesecurity” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-ethernet={none|read|rw}
Specifies permissions for the “set ethernet” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-gpio={none|read|rw}
Specifies permissions for the “set gpio” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-group={none|read|rw}
Specifies permissions for the “set group” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-host={none|read|rw}
Specifies permissions for the “set host” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-menu={none|read|rw}
Specifies permissions for the “set menu” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-mgmtconnection={none|read|rw}
Specifies permissions for the “set mgmtconnection” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-mgmtglobal={none|read|rw}
Specifies permissions for the “set mgmtglobal” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-mgmtnetwork={none|read|rw}
Specifies permissions for the “set mgmtnetwork” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-network={none|read|rw}
Specifies permissions for the “set network” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-permissions={none|read|rw}
Specifies permissions for the “set permissions” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-pmodem={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set pmodem” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-ppp={none|read|rw}
Specifies permissions for the “set pppoutbound” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-profile={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set profile” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-rciserial={none|read|rw}
Specifies permissions for the “set rciserial” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-router={none|read|rw}
Specifies permissions for the “set forwarding” and “set nat” commands.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-rtstoggle={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set rtstoggle” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-serial={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set serial” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-service={none|read|rw}
Specifies permissions for the “set service” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-snmp={none|read|rw}
Specifies permissions for the “set snmp” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-system={none|read|rw}
Specifies permissions for the “set system” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-tcpserial={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set tcpserial” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-term=s-term={none|read|rw}
Specifies permissions for the “set term” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-udpserial={none|r-self|read|rw-self|w-self-r|rw}
Specifies permissions for the “set udpserial” command.

none
The command cannot be executed.

r-self
The user can execute the "display" portion of the command if the user is logged in on the specified line.

read
The user can execute the "display" portion of the command for any line.

rw-self
The user can execute the "display" and "set" portions of the command if the user is logged in on the specified line.

w-self-r
The user can execute the "set" portion of the command if the user is logged in on the specified line. The user can execute the "display" portion of the command for any line.

rw
The user can execute the "display" and "set" portions of the command for any line.

s-user={none|read|rw}
Specifies permissions for the “set user” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

s-wlan={none|read|rw}
Specifies permissions for the “set wlan” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

status={none|read|rw}
Specifies permissions for the “status” command.

none
The command cannot be executed.

read
The user can execute the "display" portion of the command.

rw
The user can execute the "display" and "set" portions of the command.

telnet={none|execute}
Specifies permissions for the “telnet,” “mode,” and “send” commands.

none
The commands cannot be executed.

execute
The commands can be executed.

who={none|execute}
Specifies permissions for the “who” command.

none
The command cannot be executed.

execute
The command can be executed.

webui={none|execute}
Specifies permissions for Web user interface access.

none
The user cannot use the Web user interface.

execute
The user can access the Web user interface.

filesys={none|read|rw}
Specifies permissions for file system access.

none
The user cannot access the file system.

read
The user can read the file system.

rw
The user can read and write the file system.

Examples

Set group permissions

```
set permissions type=group name=gurus newpass=rw-self s-user=read
```

Set user permissions

```
set permissions id=1 newpass=rw s-user=rw s-group=rw
```

See also

- "set user" on page 131
- "set group" on page 65

set pmodem

Devices supported

This command is not supported in Digi Connect WAN devices.

Purpose

Used to:

- Configure various options for modem emulation over TCP/IP.
- Display current modem-emulation settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the modem emulation settings for the line on which they are logged in: “set permissions s-pmodem=r-self”
- For a user to display the modem emulation settings for any line: “set permissions s-pmodem=read”
- For a user to display and set the modem emulation settings for the line on which they are logged in: “set permissions s-pmodem=rw-self”
- For a user to display the modem emulation settings for any line, and set modem emulation settings for the line on which the user is logged in: “set permissions s-pmodem=w-self-r”
- For a user to display and set the modem emulation settings on any line: “set permissions s-pmodem=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure modem emulation

```
set pmodem port=range [state={on|off}] [telnet={on|off}]
```

Display current modem-emulation settings

```
set pmodem [port=range]
```

Options

port=*range*

Used to specify the serial port. Optional on a single-port device.

state={on|off}

Used to enable or disable modem emulation on a given serial port.

on

Enables modem emulation.

off

Disables modem emulation.

The default is “off.”

telnet
Used to enable or disable Telnet processing on the incoming and outgoing modem-emulation connections.

on
Enables Telnet processing.

off
Disables Telnet processing.

The default is “off.”

Example

```
set pmodem port=1 state=on
```

See also

- "revert" on page 39
- Chapter 3, "Modem Emulation Commands" for descriptions of Digi-specific commands for modem-emulation configurations.

set pppoutbound

Devices supported

This command is supported in Digi Connect WAN and Digi Connect RG devices only.

Purpose

Configures Point-to-Point Protocol (PPP) outbound connections, or displays current PPP outbound settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the pppoutbound settings: “set permissions s-ppp=read”
- For a user to display and set pppoutbound settings: “set permissions s-ppp=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure PPP outbound connections

```
set pppoutbound port=range
  [state={enabled|disabled}]
  [auth_method={none|PAP|CHAP|both}]
  [passive={on|off}]
  [remote_address={negotiated|ip_address}]
  [local_address={negotiated|ip_address}]
  [address_mask=ip_address_mask]
  [default_gateway={yes|no}]
  [protocol_compression={on|off}]
  [address_compression={on|off}]
  [header_compression={on|off}]
  [lcp_keepalive={on|off}]
  [lcp_ka_quiet_time=(10-86400 seconds)]
  [lcp_ka_max_missed_replies={(2-255|0=ignore missed replies)}]
  [asyncmap=hex_string]
  [chap_id=chap_id]
  [chap_key=chap_key]
  [pap_id=pap_id]
  [pap_password=pap_password]
  [mru=256-1500]
  [mtu=256-1500]
  [n{1-4}=phone_number]
  [redial_attempts=attempts]
  [redial_delay=delay]
  [rx_idle_timeout=timeout]
  [tx_idle_timeout=timeout]
  [init_script=chat_script]
  [dial_script=chat_script]
  [login_script=chat_script]
```

Display PPP outbound settings

```
set pppoutbound
```

Options

port=*range*
The physical interface to which the PPP outbound configuration applies. Required.

state={enabled|disabled}
The state of the interface. The default is “disabled.”

auth_method={none|PAP|CHAP|both}
Determines whether authentication is required for outbound PPP connections and, if so, what kind.

none
The remote user does not require PPP authentication.

pap
Password Authentication Protocol (PAP) authentication is required.

chap
Challenge Handshake Authentication Protocol (CHAP) authentication is required.

both
Both CHAP and PAP authentication are required.

The default is “none.” CHAP authentication works between two Digi devices. CHAP will be negotiated to PAP for all other connections.

passive={on|off}
Specifies whether the device server waits for the remote system to begin PPP negotiations, or can initiate PPP negotiations on its own.

on
The device server waits for the remote system to begin PPP negotiations.

off
The device server may initiate PPP negotiations.

The default is “off.”

Do not set both sides of a PPP connection to “passive=on.”

remote_address={negotiated|*ip_address*}
The address of the peer at the other end of the outbound PPP connection. Either a specific address or the keyword “negotiated” can be specified; “negotiated” means that the address will be accepted from the peer. An IP address of all zeroes is equivalent to specifying the keyword “negotiated.”

local_address={negotiated|*ip_address*}
The IP address of the local end of the PPP outbound connection. Either a specific address or the keyword “negotiated” can be specified; “negotiated” means that the address will be accepted from the peer. An IP address of all zeroes is equivalent to specifying the keyword “negotiated.”

address_mask=*ip_address_mask*
The IP mask to apply to the address specified on the “remote address” and “local address” options. When you specify a specific IP address on the “remote address” and “local address” options, this option modifies the meaning of the IP address for routing purposes. The default is 255.255.255.255.

default_gateway={yes|no}
Selects whether to use the PPP interface as the default route. The default is “no.”

protocol_compression={on|off}
Specifies whether the device server attempts to negotiate protocol compression on PPP connections.

on
The device server attempts to negotiate protocol compression on PPP connections.

off
The device server will **not** negotiate protocol compression.

The default is “on.”

address_compression={on|off}
Specifies whether the device server attempts to negotiate address compression on PPP connections.

on
The device server attempts to negotiate address compression.

off
The device server does **not** attempt to negotiate address compression.

The default is “on.”

header_compression={on|off}
Specifies whether the device server attempts to negotiate IP protocol header compression on PPP connections. This is commonly referred to as Van Jacobsen (VJ) header compression.

on
The device server attempts to negotiate IP protocol header compression.

off
The device server does **not** attempt to negotiate IP protocol header compression.

The default is “on.”

lcp_keepalive={on|off}
Specifies whether the device server sends Link Control Protocol (LCP) echo requests after a “quiet” interval, in order to test the PPP link and/or keep it alive. “Quiet” means not having received any bytes over the PPP link for a specified time interval, which is set by the “lcp_ka_quiet_time” option. In PPP networks that support LCP echoes, an LCP echo reply is returned by the remote end of the PPP connection.

Even if LCP keepalives are disabled in this device (by “lcp_keepalive=off”), the device will still reply to LCP echo request messages it may receive from the remote side of the PPP connection by sending an LCP echo reply message. But the device itself will not originate any LCP echo request messages.

The options are:

on
The device server sends LCP echo requests after a configurable “quiet” interval, set by the “lcp_ka_quiet_time” option.

off
The device server does not send LCP echo requests.

lcp_ka_quiet_time=(10-86400 seconds)
Specifies the “quiet” interval, in seconds, after which the device server sends an LCP echo request. “Quiet” means not having received any bytes over the PPP link for the interval specified by this option.

lcp_ka_max_missed_replies={(2-255|0=ignore missed replies)}
Specifies how many consecutive echo replies may be missed before the device server disconnects the PPP link. A value of 0 (zero) specifies that the device server should not act on missed LCP echo replies by disconnecting the PPP link. Note that if bytes of any kind, LCP echo reply or otherwise, are received, the PPP link is deemed to be active, and the “missed LCP echo replies” count is reset to zero.

asyncmap=*hex_string*
A mask for PPP connections that defines which of the 32 asynchronous control characters to transpose. These characters, in the range 0x00 to 0x1f, are used by some devices to implement software flow control. These devices may misinterpret PPP transmission of control characters and close the link. This mask tells PPP which characters to transpose.

The default is FFFF, which means transpose all 32 control characters. Any combination is valid. The following are the masks most likely used:

FFFFFFFF
Transpose all control characters.

00000000
Transpose none.

000A0000
Transpose Ctrl-Q and Ctrl-S.

chap_id=*chap_id*
A character string that identifies the outbound PPP user using CHAP authentication. This is equivalent to a user or login name. The string must be 32 or fewer characters and must be recognized by the peer.

chap_key=*chap_key*
A character string that authenticates the outbound PPP user using CHAP authentication. This is equivalent to a password. The string must be 16 or fewer characters and must be recognized by the peer.

pap_id=*pap_id*
A character string that identifies the outbound PPP user using PAP authentication. This is equivalent to a user (or login) name. The string must be 32 or fewer characters and must be recognized by the peer.

pap_password=*pap_password*
A character string that authenticates the outbound PPP user using PAP authentication. This is equivalent to a password. The string must be 16 or fewer characters and must be recognized by the peer.

mru=256-1500
The maximum received unit (MRU), or frame size, in bytes, to be received from the other end of the PPP connection. This is a negotiated value. The default is 1500 bytes.

mtu=256-1500
The maximum transmission unit (MTU), or frame size, in bytes, to use for this PPP outbound connection. For PPP connections, the MTU is negotiated, so enter 1500, the largest size device server will permit the remote host to send. For PPP users, the range is 128 to 1500 bytes, and the default is 1500 bytes.

n*{1-4}=*phone_number
Up to four phone numbers to dial to request a PPP outbound connection. The phone numbers are dialed sequentially.

redial_attempts=*attempts*
The number of times the firmware will attempt to redial before giving up.

redial_delay=*delay*
The time to wait after an unsuccessful dial attempt.

rx_idle_timeout=*timeout*
The time, in seconds, after which if no data has been received over the link in timeout seconds, the connection is disconnected.

tx_idle_timeout=*timeout*
The time, in seconds, after which if no data has been transmitted over the link, the connection is disconnected.

init_script=*chat_script*
An initialization script, run once at interface startup. For example:

```
init_script="'' ATZ OK \c"
```

dial_script=*chat_script*
A dialing script, used any time a number is dialed for the interface. For example:

```
dial_script="'' ATDT\T CONNECT \c"
```

login_script=*chat_script*
A login script, used to log in to the remote system on the other end of the outbound PPP connection. For example:

```
login_script="ogin: <username> assword: <password>"
```

See also

- "revert" on page 39

set profile

Devices supported

This command is supported in all Digi Connect Family devices. However, some port profiles are not supported in particular devices, as noted in the “profile” option’s description.

Purpose

Associates a particular port with one of several port configuration profiles, or displays the current port-profile settings.

Port profiles are a defined set of port configuration settings for a particular use. A port profile reconfigures serial-port settings to the necessary default values in order for the profile to operate correctly.

Port-profile configuration is most often performed through the default web interface for a device. It is not often specified from the command line, but is available if needed.

Digi Connect devices support several port profiles:

- Console Management profile: Allows you to access a device’s console port over a network connection.
- Modem Emulation profile: Allows you to configure the serial port to act as a modem. (Not supported in Digi Connect WAN.)
- RealPort profile: Allows you to map a COM or TTY port to the serial port. (Not supported in Digi Connect WAN)
- TCP Sockets profile: Allows a serial device to communicate over a TCP network.
- Tunneling profile, also known as the Serial Bridge profile: Configures one side of a serial bridge. A bridge connects two serial devices over the network, as if they were connected with a serial cable.
- UDP Sockets profile: Allows a serial device to communicate using UDP. (Not supported in Digi Connect WAN)
- Custom profile: An advanced option to allow full configuration of the serial port. This profile allows you to view all settings associated with the serial port.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the profile settings for the line on which they are logged in: “set permissions s-pmodem=r-self”
- For a user to display the profile settings for any line: “set permissions s-pmodem=read”
- For a user to display and set the profile settings for the line on which they are logged in: “set permissions s-pmodem=rw-self”
- For a user to display the profile settings for any line, and set modem emulation settings for the line on which the user is logged in: “set permissions s-pmodem=w-self-r”
- For a user to display and set the profile settings on any line: “set permissions s-pmodem=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure port profile settings

```
set profile port=port profile=profile
```

Display current port profile settings for all available serial ports

```
set profile
```

Display current port profile settings for a particular serial port

```
set profile port=port
```

Options

port

The serial port number or range of serial ports associated with the port profile. Required when configuring port profiles.

profile

The port profile to use for the serial port. Required when configuring port profiles. Choosing a particular port profile causes the serial port’s configuration to be reset to defaults, and then for the default settings for that port profile to take effect.

Depending on the port-profile choices available for the device, the value of “profile” can be one of the following:

console_management

Associates the Console Management port profile with the port. Not supported in Digi Connect WAN.

modem_emulation

Associates the Modem Emulation port profile with the port. Not supported in Digi Connect WAN.

realport

Associates the RealPort port profile with the port.

tcp_sockets

Associates the TCP Sockets port profile with the port.

tunneling
Associates the Serial Bridge port profile with the port.

udp_sockets
Associates the UDP Sockets port profile with the port. Not supported in Digi Connect WAN.

custom
Associates the Custom port profile with the port.

See also

- "revert" on page 39.
- For more information on port profiles, see the topic in the *Digi Connect Family User's Guide* titled "Using Port Profiles to Configure Devices."

set rciserial

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to:

- Turn on/off RCI serial mode on the first serial port. The RCI serial mode is a mode that allows a configuration file to be loaded over a serial port when the DSR input signal is high.
- Display current RCI serial-mode settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the RCI serial settings for any line: “set permissions s-rciserial=read”
- For a user to display and set the RCI serial settings on any line: “set permissions s-rciserial=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Turn on off RCI serial mode

```
set rciserial [state={on|off}]
```

Display current RCI serial-mode settings

```
set rciserial
```

Options

state

Enables (on) or disables (off) RCI serial mode on the port. The default is “off.”

Example

```
set rciserial state=on
```

See also

"backup" on page 14.

set rtstoggle

Devices supported

This command is not supported in Digi Connect WAN devices.

Purpose

Used to:

- Enable or disable RTS toggle on a given serial port. RTS toggle is used to raise RTS when sending data.
- Display current RTS toggle settings.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the RTS toggle settings for the line on which they are logged in: “set permissions s-rtstoggle=r-self”
- For a user to display the RTS toggle settings for any line: “set permissions s-rtstoggle=read”
- For a user to display and set the RTS toggle settings for the line on which they are logged in: “set permissions s-rtstoggle=rw-self”
- For a user to display the RTS toggle settings for any line, and set RCI serial settings for the line on which the user is logged in: “set permissions s-rtstoggle=w-self-r”
- For a user to display and set the RTS toggle settings on any line: “set permissions s-rtstoggle=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Enable or disable RTS toggle

```
set rtstoggle port=range [state={on|off}]
  [predelay=delay] [postdelay=delay]
```

Display current RTS toggle settings

```
set rtstoggle [port=range]
```

Options

port=*range*

Used to specify the serial port. Optional on a single-port device.

state={on|off}

Used to enable or disable the RTS toggle feature.

on

Enables the RTS toggle feature.

off

Disables the RTS toggle feature.

The default is “off.”

predelay=*delay*
Specifies the time in milliseconds to wait after the RTS signal is turned on before sending data. The range is 0 to 5000 milliseconds. The default is 0.

postdelay=*delay*
Specifies the time in milliseconds to wait after sending data before turning off the RTS signal. The range is 0 to 5000 milliseconds. The default is 0.

Examples

```
set rtstoggle state=on predelay=10
```

set serial

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to:

- Set general serial configuration options, such as baud rate, character size, parity, stop bits, and flow control.
- Display current serial configuration options.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the serial settings for the line on which they are logged in: “set permissions s-serial=r-self”
- For a user to display the serial settings for any line: “set permissions s-serial=read”
- For a user to display and set the serial settings for the line on which they are logged in: “set permissions s-serial=rw-self”
- For a user to display the serial settings for any line, and set serial settings for the line on which the user is logged in: “set permissions s-serial=w-self-r”
- For a user to display and set the serial settings on any line: “set permissions s-serial=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set general serial configuration options

```
set serial port=range [altpin={on|off}] [baudrate=bps]
  [csize={5|6|7|8}] [parity={none|even|odd|mark|space}]
  [stopb={1|2}] [flowcontrol={hardware|software|none}]
```

Display current serial configuration options

```
set serial [port=range]
```

Options

port=*range*

Used to specify the serial port. Optional on a single-port device.

altpin={on|off}

Determines whether the altpin option, which swaps DCD with DSR so that eight-wire RJ-45 cables can be used with modems, is used:

on

The altpin option is used.

off

The altpin option is **not** used.

The default is “off.”

baudrate=*bps*

The baud rate in bits per second. The default is 9600.

csize={5|6|7|8}
The character size, which can be 5, 6, 7, or 8 bits. The default is 8.

flowcontrol={hardware|software|none}
Specifies which kind of flow control is used on the line.

hardware
Hardware flow control (RTS/CTS).

software
Software flow control (Xon/Xoff).

none
No flow control.

The default is “software.”

parity={none|even|odd|mark|space}
The parity used for the line.

none
No parity.

even
Even parity.

odd
Odd parity.

mark
Mark parity.

space
Space parity.

The default is “none.”

stopb={1|2}
The number of stop bits per character to use on this line. The value used here must match the setting on the device connected to this port. Use 1 or 2 stop bits.

The default is 1 stop bit.

Example

```
set serial baudrate=9600 flowcontrol=hardware
```

See also

"revert" on page 39.

set service

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to:

- Enable and disable network services.
- Change the network port on which a given service listens.
- Display the entire service table, or an entry in the service table.

Required permissions

Permissions must be set to “set permissions s-service=read” to display network service settings, and “set permissions s-services=rw” to display and change network service settings.

Syntax

Enable/disable network services or change network port for service

```
set service [range=range]
  [state={on|off}]
  [ipport=network_port]
  [keepalive={on|off}]
  [nodelay={on|off}]
```

Display service table or entries in the table

```
set service [range=range]
```

Options

range=*range*

Used to specify the index of the network service to which the rest of the command’s options apply.

active={on|off}

Used to enable or disable a given network service.

ipport=*network port*

Used to change the network port on which a given network service listens.

keepalive={on|off}

Indicates whether or not TCP keepalives will be sent for specified range of services. If set to on, keepalives will be sent, if it is off, keepalives will not be sent.

Configurable TCP keepalive parameters, for example, how many keepalives to send and when to send them are configured globally via the "set network" command (see "set network" on page 84).

nodelay={on|off}

Used to allow unacknowledged or smaller than maximum segment sized data to be sent.

Note: The “nodelay” option disables Nagle’s algorithm, which is on by default, for some TCP services. The purpose of Nagle's algorithm is to reduce the number of small packets sent. Briefly Nagle's algorithm says to hold on to outgoing data when there is either unacknowledged sent data or there is less than maximum segment size (typically around 1500 bytes for Ethernet) worth of data to be sent. It does a good job at keeping transmission efficient, but there are times where it is desirable to disable it.

Examples

Disable service

```
set service range=1 state=off
```

Change the network port (ipport) of a service

```
set service range=1 ipport=500
```

Displaying the service table

In this example, the set service command displays the entire service table.

```
set service
```

Displaying an entry in the service table

In this example, the set service command displays a range of entries in the service table.

```
set service range=2-4
```

Allow outgoing data that is either unacknowledged or is less than maximum segment size

```
set service ra=5 nodelay=on
```

See also

- "revert" on page 39.
- "set network" on page 84.

set snmp

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Configures the Simple Network Management Protocol (SNMP) agent, or displays current SNMP settings.

Required permissions

Permissions must be set to “set permissions s-snmp=read” to display network service settings, and “set permissions s-snmp=rw” to display and change network service settings.

Syntax

Set SNMP settings

```
set snmp [trapdestip=ipaddress|publiccommunity=string|
  privatecommunity=string|setsenabled={on|off}|
  authfailtrap={on|off}|coldstarttrap={on|off}|
  linkuptrap={on|off}|logintrap={on|off}]
```

Display current SNMP settings

```
set snmp
```

Options

trapdestip=*ipaddress*

Used to configure the IP address of the system to which the agent should send traps. To enable any of the traps, a non-zero value for trapdestip must be specified.

The” trapdestip” option is required in order for alarms to be sent in the form of SNMP traps. See "send" on page 43.

publiccommunity=*string*

The password required to “get” SNMP-managed objects. The default is “public”.

privatecommunity=*string*

The password required to “set” SNMP-managed objects. The default is “private”.

setsenabled={on|off}

Enables or disables “sets” of SNMP-managed objects.

on

Enables “sets” if the provided private community matches the current private community.

off

Disables “sets” even if the provided private community matches the current private community.

The default is “off.”

authfailtrap={on|off}
Enables or disables the sending of authentication failure traps.

on
Enables the sending of authentication failure traps.

off
Disables the sending of authentication failure traps.

The default is “off.”

coldstarttrap={on|off}
Enables or disables the sending of cold start traps.

on
Enables the sending of cold start traps.

off
Disables the sending of cold start traps.

The default is “off.”

linkuptrap={on|off}
Enables or disables the sending of link up traps.

on
Enables the sending of link up traps.

off
Disables the sending of link up traps.

The default is “off.”

logintrap={on|off}
Enables or disables the sending of login traps.

on
Enables the sending of login traps.

off
Disables the sending of login traps.

The default is “off.”

Examples

Enable authentication failure traps

```
set snmp trapdestip=10.0.0.1 authfailtrap=on
```

Specify a new private community string

```
set snmp privatecommunity=”StLucia72!”
```

See also

- "revert" on page 39.
- To disable and enable SNMP, use the “set service” command. See "set service" on page 118.
- To disable and enable SNMP alarm traps, see "send" on page 43.

set system

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Configures and displays system-identifying information, such as a description of the device, its location, and a contact person.

Required permissions

Permissions must be set to “set permissions s-service=read” to display network service settings, and “set permissions s-services=rw” to display and change network service settings.

Syntax

Change system-identifying information

```
set system [description=string|location=string|contact=string]
```

Display system identifying information

```
set system
```

Options

description=*string*

A description of this device. The maximum length is 64 characters. The default is “”.

location=*string*

The location of this device. The maximum length is 64 characters. The default is “”.

contact=*string*

The contact for this device. The maximum length is 64 characters. The default is “”.

Examples

Set description, contact, and location

```
set system description=”Engineering printer” location=”Room 1347”
  contact=”John Doe at x-3749”
```

See also

"revert" on page 39.

set tcpserial

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to set behaviors of TCP serial connections, or display current TCP serial settings.

This command affects the following TCP serial connections:

- Connections made using the autoconnect feature.
- Incoming network connections made to the following:
  - The TCP server (raw socket, IP port 2101)
  - The Telnet server (telnet socket, IP port 2001)
  - Secure Sockets Layer (ssl socket, IP port 2601)

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the TCP serial settings for the line on which they are logged in: “set permissions s-tcpserial=r-self”
- For a user to display the TCP serial settings for any line: “set permissions s-tcpserial=read”
- For a user to display and set the TCP serial settings for the line on which they are logged in: “set permissions s-tcpserial=rw-self”
- For a user to display the TCP serial settings for any line, and set TCP serial settings for the line on which the user is logged in: “set permissions s-tcpserial=w-self-r”
- For a user to display and set the TCP serial settings on any line: “set permissions s-tcpserial=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set behaviors of TCP serial connections

```
set tcpserial port=range [hangupdcd={on|off}]
  [hangupdsr={on|off}] [idletime={0|n}] [sid={on|off}]
  [sidstring=socketID_string] [buffered={on|off}]
  [sendcount=1-65535 bytes [sendtime={0|1-65535ms}]
  [endpattern=string] [strippattern={on|off}
```

Display current TCP serial settings

```
set tcpserial [port=range]
```

Options

port=*range*
Used to specify the serial port. Optional on a single-port device.

hangupdcd={on|off}
Indicates whether an established network connection should be terminated when the serial port's DCD signal drops. The default is "off."

hangupdsr={on|off|}
Indicates whether an established network connection should be terminated when the serial port's DSR signal drops. The default is "off."

idletime=idletime={0|*n*}
Indicates that established network connection should be terminated if the serial port is idle for the specified amount of time in seconds. A value of 0 (zero) disables this option. The default is 0.

sid={on|off}
Determines how the socket ID (SID) string in the "sidstring" option is handled.

on
The value for the "sidstring" option is sent to the network destination right before the first data bytes are sent to the network.

off
The value for the "sidstring" option is not sent to the network destination.

The default is "off."

sidstring=*socketID_string*
When the "sid" option is set to on, this string is sent to the network destination right before the first data bytes are sent to the network. The maximum length of this string is 256 characters, including escape sequences for special characters. The maximum parsed length of this string is 256 characters. That is, this string must reduce down to a 256-character string when the escape sequences are processed. For more details on the escape sequences, see "Entering Special Characters in String Values" on page 10.

buffered={on|off}
Turning on this feature on allows controlling how serial data is sent out to the network. The "sendcount," "sendtime," "endpattern," and "strippattern" options are used to control how data is sent out once the "buffered" option is set to "on." The default is "off."

sendcount=1 - 65535 bytes
Indicates that data from the serial port should be sent out to the network after buffering the given number of bytes. This option only is valid when the "buffered" option is "on." The default is 1024 bytes.

sendtime={0|1-65535ms}
Indicates that data from the serial port should be sent out to the network after the given amount of time has past where no new data has arrived from the serial port. This option only is valid when the "buffered" option is "on." A value of 0 (zero) disables this option. The default is 0.

endpattern=*string*

Indicates that data from the serial port should be sent out to the network after the given endpattern string has been found in the data from the serial port. This option only is valid when the “buffered” option is “on.” An empty string disables this option.

The maximum length of this string is 16 characters, including escape sequences for special characters. For more details on the escape sequences, see "Entering Special Characters in String Values" on page 10. The maximum parsed length of this string is 4 characters. That is, this string must reduce down to a 4-character string when the escape sequences are processed.

strippattern={on|off}

This option corresponds with the “endpattern” option. When a valid “endpattern” string is found, this option indicates whether the matching string is stripped or kept in the data stream. The default is “off.”

Examples

```
set tcpserial hangupdcd=off idletime=20
set tcpserial port=1 sid=on sidstring="abc"
set tcpserial port=1 buffered=on sendtime=50 sendcount=512
set tcpserial
```

See also

"revert" on page 39.

set term

Devices supported

This command is supported in Digi Connect WAN and Digi Connect RG devices only.

Purpose

Allows for connecting a terminal to a device's serial port and accessing the command line of the device.

In the cases where the default access to the terminal and the command line is "on," this command is important if users want to use the serial port for purposes other than having a command line. That is, they must change the state of the serial port access from "on" to "off" in order to use the serial port for another purpose.

Required permissions

Permissions must be set to "set permissions s-term=read" to display terminal settings, and "set permissions s-term=rw" to display and change terminal settings.

Syntax

Configure terminal settings

```
set term [state={on|off}]
```

Display current terminal settings

```
set term
```

Options

state={on|off}

Specifies whether terminal access is enabled for the serial port. The default is "on" for Digi Connect WAN and Digi Connect RG devices.

set udpserial

Devices supported

This command is not supported in Digi Connect WAN devices.

Purpose

Use this command to set up the UDP serial feature, or display current UDP serial settings.

The UDP serial feature allows data to be sent between the serial port and one or more remote network destinations using the UDP protocol. When this feature is enabled for a given serial port, data sent to the serial port will be sent out to the configured destinations. Also any time data is sent to the UDP serial service (IP port 2101) and the serial port is not being used by another service, the data will be sent to the serial port.

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display the UDP serial settings for the line on which they are logged in: “set permissions s-udpserial=r-self”
- For a user to display the UDP serial settings for any line: “set permissions s-udpserial=read”
- For a user to display and set the UDP serial settings for the line on which they are logged in: “set permissions s-udpserial=rw-self”
- For a user to display the UDP serial settings for any line, and set UDP serial settings for the line on which the user is logged in: “set permissions s-udpserial=w-self-r”
- For a user to display and set the UDP serial settings on any line: “set permissions s-udpserial=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Set general UDP serial forwarding characteristics for a serial port

```
set udpserial port=range [state={on|off}]
  [sendcount=bytes] [sendtime={0|time}]
  [endpattern=string] [strippattern={on|off}]
  [sid={on|off}] [sidstring=string}
  [closetime=time]
```

Set UDP destinations for a given serial port

```
set udpserial port=range range=1-64 [description=string]
  [active={on|off} [ipaddress=ip_address}
  [ipport=ip_port]
```

Display current UDP serial settings

```
set udpserial [port=range [range=range]]
```

Options

Options for setting general UDP serial forwarding characteristics

port=*range*
Used to specify the serial port. Optional on a single-port device.

state={on|off}
Used to enable or disable sending data from the serial port to remote network destinations. The default is “off.”

sendcount=*bytes*
The number of bytes received from the serial port that will cause the data to be sent on to the network destinations. This trigger cannot be disabled. The default is 1024 bytes.

sendtime={0|*time*}
The amount of idle time, in milliseconds, allowed before sending data to the network. If no data is received on the serial port for the time specified by this option, any buffered data will be sent on to the network destinations. A value of 0 (zero) disables this trigger.

endpattern=*string*
If this string is set, any pattern match of data received from the serial port will cause the data to be sent on to the network destinations. The maximum length of this string is 16 characters, including escape sequences for special characters. For more details on the escape sequences, see "Entering Special Characters in String Values" on page 10. The maximum parsed length of this string is 4 characters. That is, this string must reduce down to a 4-character string when the escape sequences are processed.

strippattern={on|off}
Determines how the data specified by the “endpattern” option is handled.

on
The endpattern that is found is stripped from the stream before any data is to be sent on to the network destinations.

off
The endpattern is not stripped from the stream before data is sent on to network destinations.

The default is “off.”

sid={on|off}
Determines how the socket ID (SID) string in the “sidstring” option is handled; that is, whether the string specified by the “sidstring” option is sent at the beginning of each UDP packet.

on
The value of “sidstring” is sent at the beginning of each UDP packet.

off
The value of “sidstring” is not sent at the beginning of each UDP packet.

The default is “off.”

sidstring=*string*
The string sent at the beginning of each UDP packet if the “sid” option is set to on. The maximum length of this string is 256 characters, including escape sequences for special characters. For more details on the escape sequences, see "Entering Special Characters in String Values" on page 10. The maximum parsed length of this string is 256 characters. That is, this string must reduce down to a 256-character string when the escape sequences are processed.

clostime=*time*
The amount of idle time before closing the serial port. If no data is sent or received on the serial port for the specified amount of time, the serial port is closed. This allows the serial port to be used by other things such as TCP socket or RealPort. If a value of 0 is set, the “closetime” option will internally be recalculated to be 1 second or twice the send time, whichever is greater. The default is 0.

Options for setting UDP destinations for a given serial port

The following options require a specific range to be specified by the “range” option.

port=*range*
Specifies the serial port. Optional on a single-port device.

range={1-64}
Specifies the UDP destination to be configured.

description=*string*
A string for descriptive purposes only.

active={on|off}
Specifies whether data from the serial port is sent to this destination.

on
Data from the serial port is sent to this destination.

off
This destination is not sent any data.

The default is “off.”

ipaddress=*ipaddress*
The IP address of the network destination to which data is sent.

ipport=*ipport*
The UDP port of the destination to which data is sent.

Options for displaying current UDP serial settings

port=*range*
Used to specify the serial port. Optional on a single-port device.

range=range
Identifies the range of UDP destinations to be displayed.

Examples

Set general UDP serial forwarding based on bytes received

In this example, the amount of bytes received from the serial port will cause the data to be sent on to the network destination.

```
set udpserial port=1 state=on sendcount=2
```

Set UDP destinations for a given serial port

In this example, data will be sent to the destination identified.

```
set udpserial port=1 range=1 ipaddress=10.0.0.1 ipport=2101
  active=on
```

Display current UDP serial settings

The following are all valid ways of using set udpserial to display current UDP serial settings:

```
set udpserial
set udpserial port=1
set udpserial port=1 range=1-12
```

See also

"revert" on page 39.

set user

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to:

- Add users for access to this Digi device. Up to 32 users can be defined.
- Associate a user with a group. A user can be associated with up to two groups.
- Disassociate a user from a group.
- Remove users.
- Change user configuration attributes.
- Display user configuration attributes.

Default permissions for a new user

When a new user is created, it is given a set of default permissions. Once a user is created, an administrator can adjust permissions up or down as needed. Default permissions for a new user are as follows. For more information on user permissions, see "set permissions" on page 86.

- none: for backup, boot, connect, display, buffers, kill, s-alarm, s-gpio, s-permissions, s-pmodem, s-rciserial, s-snmp, status, webui, filesys, s-idle, s-panic, revert-all, s-trace, s-wlan, s-menu, s-profile
- execute: For reconnect, rlogin, telnet, who, ping.
- read: access, s-ethernet, s-group, s-network, s-serial, s-service, s-system, s-trane, s-user
- r-self: autoconnect, rtstoggle, tcpserial, udpserial
- rw-self: newpass

Required permissions

To use this command, permissions must be set to one of the following:

- For a user to display user configuration attributes:
  “set permissions s-user=read”
- For a user to display and set user configuration attributes:
  “set permissions s-user=rw”

See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Add a user

```
set user add id=number newname=string
```

Remove a user

```
set user remove {id=range|name=string}
```

Associate a user with a group

```
set user associate {id=number|name=string}
  {gid=number|gname=string}
```

Disassociate a user from a group

```
set user disassociate {id=number|name=string}
  {gid=number|gname=string}
```

Change user configuration attributes

```
set user [id=range|name=string]
  [newname=string]
  [commandline={on|off}]
  [groupaccess={on|off}]
  [menu={none|index|name}]
  [defaultaccess={none|commandline|group|menu}]
  [defaultgroup={none|gid|gname}]
```

Display user configuration attributes

```
set user {id=range|name=string}
```

Display user configuration attributes for all users

```
set user
```

Options

add
Add a user. New users are created with the default permissions (see “Default permissions for a new user” earlier in this description). A maximum of 32 users can be defined.

remove
Remove users.

associate
Associate a user with a group. A user can be associated with a maximum of two groups.

disassociate
Disassociate a user from a group.

id=*range*
Specifies the ID or range of IDs of the users to be acted on.

name= *string*
Specifies the name of the user to be acted on.

newname=*string*
Specifies a new user name.

gid=*number*
Specifies the identifier for the group being associated with a user. If omitted, the “gname” option must be specified.

gname=*string*
Specifies the name of the group being associated with a user. If omitted, the “gid” option must be specified.

commandline={on|off}
Specifies whether the user is allowed to access the command line of the device.

on
User can access the command line interface.

off
User can not access the command line interface.

The default is “on.”

groupaccess={on|off}
Specifies whether the user is allowed to use the access rights for any associated groups. This allows a group to define the access rights for users. For instance, if the user has “commandline=off” and an associated group has “commandline=on,” then the user will have command line access if “groupaccess=on.”

on
The user can use group access rights.

off
The user cannot use group access rights.

The default is “off.”

menu={none|index|name}
Specifies whether the user is allowed to access the custom menu interface of the device and defines the custom menu that the user will have displayed.

none
The user is not allowed to access the custom menu interface.

index
The user is allowed to access the custom menu interface and will be displayed the custom menu at the specified index.

name
User is allowed to access the custom menu interface and will be displayed the custom menu using the specified name.

The default is “none.”

defaultaccess={none|commandline|menu|group}

Specifies the default access method and interface that a user will be given upon logging into the device. Note that the specified interface must be enabled for the user and have a valid menu and/or group if specified.

none

The user has no default access to the device and must explicitly specify the access type. If the user and/or associated group has no access rights then the user is not allowed to access either the command line interface or the custom menu interface.

commandline

The user will be displayed and given access to the command line interface assuming the user and/or associated groups have command line access rights enabled.

menu

The user will be displayed and given access to the custom menu interface and be displayed the custom menu as specified by the “menu” option.

group

The user will be displayed the default access interface as specified by the “defaultgroup” option, assuming the specified group is valid and associated to this user. This allows the default access for a user to be controlled by the associated group.

The default is “commandline.”

defaultgroup={none|gid|gname}

Specifies the default group to use when checking the default access rights when the “defaultaccess” option is set to group. The specified group must be valid and associated to the user.

none

The user will not be given any default access.

gid

The user will be given the default access method according to the default access of the group with the specified gid.

gname

The user will be given the default access method according to the default access of the group with the specified name.

The default is “none.”

Examples

Add a new user

```
set user add newname=jsmith id=4
```

Remove user 7

```
set user remove id=7
```

Associate user “johndoe” with the root group

```
set user associate name=johndoe gname=root
```

Disassociate user 15 from group 2

```
set user disassociate id=15 gid=2
```

Set a new user name to be entered at login

```
set user id=4 newname=jdoe
```

Set a user to have default command line interface access

```
set user id=4 commandline=on defaultaccess=commandline
```

Set a user to use group access rights

```
set user name=johndoe groupaccess=on defaultaccess=group
  defaultgroup=root
```

See also

- "newpass" on page 35.
- "revert" on page 39
- "set group" on page 65.
- "set menu" on page 69.
- "set permissions" on page 86.

set wlan

Devices supported

This command is supported in Digi Connect Wi-ME, Digi Connect Wi-EM, and Digi Connect Wi-SP devices.

Purpose

Configures wireless devices, or displays the status of wireless devices.

Configuring Wireless Settings

Following is information on how configuration choices for wireless devices, such as the authentication method, affect other configuration choices, such as encryption types and other options on the “set wlan” command.

Authentication methods and available encryption types

The following table shows the authentication methods available for wireless devices, and the encryption types that apply to each method. The Xs show the encryption types that can be used with each authentication method. At least one encryption type in the column must be selected if that authentication method is selected.

Encryption Type:	Authentication Method:					
	Open	Shared Key	WEP authenti-cation	WPA-PSK	WPA authenti-cation	LEAP
Open	X	X				
WEP	X	X	X	X	X	X
TKIP				X	X	
CCMP				X	X	

Authentication methods and associated data fields

The following table shows the authentication methods available for wireless devices, and the associated data fields, or command options, that apply to each method. All data fields with that have an X in a particular authentication method's column are required, except for trusted certificates, which is optional.

Data Fields:	Authentication Method:					
	Open	**Shared Key**	**WEP authenti-cation**	**WPA-PSK**	**WPA authenti-cation**	**LEAP**
WEP keys	X If WEP encryption is selected.	X				
Passphrase				X		
Authentication methods			X		X	
Username, password			X		X	X
Client certificate			X If TLS is selected.		X If TLS is selected.	
Trusted certificates			X		X	

Inner and outer protocols

The following table shows relationships between outer protocols and inner protocols specified on the “set wlan” command. Outer protocols are the types of Extensible Authentication Protocols (EAP) that are allowed to establish the initial connection with an authentication server or access point. The outer protocols are specified by the “outer_eap” option. Inner protocols are the types of protocols that are allowed to authenticate the device. These protocols are used within the encrypted connection established by PEAP or TTLs. The inner protocols are specified by the “inner eap” option.

Inner Protocols:	Outer Protocols:		
	PEAP	TLS	TTLS
GTC	X		
MD5	X		X
MSCHAPv2	X		X
OTP	X		X
TLS	X		X
CHAP			X
MSCHAP			X
MSCHAPv2			X
PAP			X

Required permissions

Permissions must be set to “set permissions s-wlan=read” to display wireless settings, and “set permissions s-wlan=rw” to display and change wireless settings. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

Configure wireless settings

```
set wlan
   [protmode={bss|ibss_create|ibss_join|any}]
   [channel={0|1-14}]
   [ssid=string]
   [authentication={[open],[sharedkey],[wep_auth],[wpa_psk],
   [wpa_auth],[leap],[any]}
   [encryption={[open],[wep],[tkip],[ccmp],[any]}]
   [outer_eap={[peap],[tls],[ttls],[any]}]
   [inner_eap={[gtc],[md5],[mschapv2],[otp],[chap],[mschap],
   [ttls_mschapv2],[pap],[any]}]
   [options={[diversity],[short_preamble],[verify_cert]}]
   [username=string]
   [password=string]
   [psk=string]
   [wepmode={64bit|128bit}]
   [wepindex=1-4]
   [wepkeyN=hex_string]]
   [country=string]
   [maxtxrate={1mb|2mb|5.5mb|11mb}]
   [txpower={16dbm|14dbm|12dbm|10dbm|8dbm|6dbm}]
```

Display wireless settings

```
set wlan
```

Options

Regarding command options “authentication encryption,” “outer_eap,” “inner_eap,” and “options:” These options have multiple values. More than one value may be specified for each option to indicate the set of allowed values. The actual value used will be determined by the capabilities of the wireless network.

protmode={bss|ibss_create|ibss_join|any}
Used to change the operation mode in which the device will work.

bss
Indicates that the device should join an access point.

ibss_create
Indicates the device will attempt to first join an Independent Basic Service Set (IBSS), and create one if it is unable to find one.

ibss_join
Indicates the device should attempt to join an IBSS or self-contained wireless network.

any
Enables all operation modes.

Typically, the operation mode is “bss.” The default is “bss.”

channel={0|1-14}
Sets the frequency channel that the wireless Ethernet radio will use. A value of 0 indicates that the device will scan all frequencies until it finds one with an available access point or wireless network it can join. The default value is 10.

ssid=*string*
Used to specify the identifier of the wireless network that the device should be joined to. The default is an empty string, which indicates that the first wireless network that the device finds will be joined to.

authentication=
{[open],[sharekey],[wep_auth],[wpa_psk],[wpa_auth],[leap],[any]}
The types of authentication that are allowed to establish a connection with the access point.

open
IEEE 802.11 open system authentication is used to establish a connection with the access point.

sharedkey
IEEE 802.11 shared key authentication is used to establish a connection with the access point. At least one WEP key must be specified to use shared key authentication.

wep_auth
IEEE 802.1x authentication (EAP) is used to establish a connection with an authentication server or access point. Wired Equivalent Privacy (WEP) keys are dynamically generated to encrypt data over the wireless link.

wpa_psk
The Wi-Fi Protected Access (WPA) protocol is used with a pre-shared key (PSK) that you specify to establish a connection with the access point and encrypt the wireless link.

wpa_auth
The WPA protocol and IEEE 802.1x authentication (EAP) is used to establish a connection with an authentication server or access point. Encryption keys are dynamically generated to encrypt data over the wireless link.

leap
Lightweight Extensible Authentication Protocol (LEAP) is used to establish a connection with an authentication server or access point. Wired Equivalent Privacy (WEP) keys are dynamically generated to encrypt the wireless link. A username and password must be specified to use leap.

any
Sets all authentication types.

encryption={[open],[wep],[tkip],[ccmp],[any]}
The types of encryption that are allowed to encrypt data transferred over the wireless link.

open
No encryption is used over the wireless link. Can be used with open and sharedkey authentication.

wep
Wired Equivalent Privacy (WEP) encryption is used over the wireless link. Can be used with open, sharedkey, wep_auth, wpa_psk, wpa_auth, and leap authentication.

tkip
Temporal Key Integrity Protocol (TKIP) encryption is used over the wireless link. Can be used with wpa_psk and wpa_auth authentication.

ccmp
CCMP (AES) encryption is used over the wireless link. Can be used with wpa_psk and wpa_auth authentication.

any
Sets all encryption types.

outer_eap={[peap],[tls],[ttls],[any]}
The types of Extensible Authentication Protocols (EAP) that are allowed to establish the initial connection with an authentication server or access point. These are used with wep_auth and wpa_auth authentication.

peap
Protected Extensible Authentication Protocol (PEAP). A username and password must be specified to use peap.

tls
Transport Layer Security (TLS). A client certificate and private key must be installed on the device to use tls.

ttls
Tunneled Transport Layer Security (TTLS). A username and password must be specified to use ttls.

any
Sets all outer and inner Extensible Authentication Protocols.

inner_eap={[gtc],[md5],[mschapv2],[otp],[chap],[mschap],[ttls_mschapv2],[pap,[any]]}

The types of protocols that are allowed to authenticate the device. These are used within the encrypted connection established by PEAP or TTLS.

The following are Extensible Access Protocols (EAP) that can be used with PEAP or TTLS:

gtc
Generic token card.

md5
Message Digest Algorithm (MD5).

mschapv2
Microsoft Challenge response Protocol version 2.

otp
One Time Password.

The following are non-EAP protocols that can be used with TTLS:

chap
Challenge response Protocol.

mschap
Microsoft Challenge response Protocol.

ttls_mschapv2
Microsoft Challenge response Protocol version 2.

pap
Password Authentication Protocol.

any
Sets all inner Extensible Authentication Protocols.

options={[diversity],[short_preamble],[verify_cert]}

diversity
Enable reception on multiple antennas on devices with this capability.

short_preamble
Enable transmission of wireless frames using short preambles, if allowed by the access point.

verify_cert
Verify that certificates received from an authentication server or access point are signed by a trusted certificate authority (CA). Standard CAs are built in, and additional trusted certificates may be added.

username=*string*
Used when the “security” option is set to “wpa_auth.” This option specifies the user name to be used during authentication.

password=*string*
Used when the “security” option is set to “wpa_auth.” This option specifies the password to be used during authentication.

psk=*string*
Used when the “security” option is set to “wpa_psk.” This option specifies a string that is converted into a pre-shared key (PSK) that is used for encryption.

wepmode={64bit|128bit}
Specifies the key size used when WEP encryption is enabled. The default is 64bit.

wepindex=1-4
Specifies which of the 4 possible keys will be used. The default is 1.

wepkeyN=*hex_string*
A hexadecimal string that serves as the key if WEP encryption is enabled. The key consists of 26, 10, or 0 (zero) hexadecimal digit characters. If “wepmode=64bit”, the wepkey is 10 digits. If “wepmode=128bit”, the wepkey is 26 digits. A wepkey value of 0 length clears the value.

country=*string*
The country in which the device will be used. By selecting a country, the channel settings will be restricted to the legal set for that country.

maxtxrate={1mb|2mb|5.5mb|11mb}
The maximum transmission rate that the device will use.

txpower={16dbm|14dbm|12dbm|10dbm|8dbm|6dbm}
The wireless transmit power.

Example

```
#> set wlan wepkey1=ab12cd34ef567ab12cd34ef567 wepindex=1
#> set wlan wepmode=128bit
#> set wlan ssid="access point 1"
```

show

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Displays the current settings in a device, including current configuration settings, boot code loaded in the device, and the effects of commands issued to the device.

Required permissions

For this command to display current device settings, the various “set” commands must have be set to either “read” or “r-self,” depending on the available permissions for the commands. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

`show` *`option`* `[port=`*`range`*`] [range=`*`range`*`]`

Options

option

Specifies which settings in the device to show. The following options can be specified. The use of the “port” and “range” options on the show command depends on whether the command that was used to configure the settings uses the “port” and “range” options as well.

Option	Displays settings configured by	Works w/ port option	Works w/ range option
accesscontrol	set accesscontrol	N	N
alarm	set alarm	N	Y
arp	The arp table. This option is not associated with a “set” command.	N	N
autoconnect	set autoconnect	Y	N
buffer	set buffer	Y	N
devicesecurity	set devicesecurity	N	N
ethernet	set ethernet	N	N
forwarding	set forwarding	N	N
gpio	set gpio	N	Y
group	set group	N	N
host	set host	N	N
menu	set menu	N	Y
mgmtconnection	set mgmtconnection	N	Y
mgmtglobal	set mgmtglobal	N	N
mgmtnetwork	set mgmtnetwork	N	Y

Option	Displays settings configured by	Works w/ port option	Works w/ range option
nat	set nat	N	N
network	set network	N	N
permissions	set permissions	N	N
pmodem	set pmodem	Y	N
pppoutbound	set pppoutbound	Y	N
profile	set profile	Y	N
rciserial	set rciserial	N	N
route	The IP routing table. This command is not associated with a “set” command.	N	N
rtstoggle	set rtstoggle	Y	N
serial	set serial	Y	N
service	set service	N	Y
snmp	set snmp	N	N
system	set system	N	N
tcpserial	set tcpserial	Y	N
term	set term		
udpserial	set udpserial	Y	Y (when specifying UDP serial destinations)
user	set user	N	Y
versions	This command shows firmware version information. It is not associated with a “set” command.	N	N
wlan	set wlan	N	N

port=*range*
Identifies a particular serial port. Optional on a single-port device.

range=*range*
A configuration table entry or range of entries.

Examples

Display network configuration settings

```
show network
```

Display current alarm settings

```
show alarm
```

Display settings for a particular user

```
show user range=3
```

See also

The “set” commands (set user, set network, set serial, etc.). Entering a set command without any options displays the same information as that displayed by the show command.

status

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Displays the current list of sessions. This includes any session that was created by a connect, rlogin, or telnet command. Typically, the status command is used to determine which sessions to close.

Required permissions

Permissions must be set to “set permissions status=read” or “set permissions status=rw” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

`status [range] [session_number]`

Options

range
The range of sessions to view.

session_number
An index number identifying the session number to view.

Examples

`status`

See also

- "connect" on page 18
- "close" on page 17, for information on ending a connection.
- "rlogin" on page 42
- "telnet" on page 148

The “status” command displays the status of outgoing connections (connections made by “connect,” “rlogin,” or “telnet” commands). In contrast, the “display” command displays real-time information about a device, while the “info” command displays statistical information about a device over time. For more information, see these commands:

- "display" on page 19
- "info" on page 25.
- "who" on page 149

telnet

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Used to make an outgoing Telnet connection, also known as a session

Required permissions

Permissions must be set to “set permissions telnet=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

`telnet [options] ip-addr [tcp-port]`

Options

options

The Telnet options for the command, which may be as follows:

binary={on|off}

Turns on or off Telnet binary mode.

crmod={on|off}

Turns on or off the replacement of the carriage-return character sequence (\r) with the new-line character sequence (\n) on incoming network data.

ip-addr

The IP address of the host to which you want make a Telnet connection.

tcp-port

The TCP port assigned the Telnet application on the remote system. The default is 23, the port typically used for Telnet.

Examples

Establish a Telnet session using an IP Address

In this example, the telnet command establishes a Telnet session using an IP address. The default TCP port (23) is used.

```
telnet 192.192.150.28
```

Establish a Telnet session to a device server port from the LAN

In this example, a user on the LAN initiates a Telnet connection to port 4 on a device server.

```
telnet 192.192.150.28 2004
```

See also

- "rlogin" on page 42
- "connect" on page 18
- "close" on page 17
- "status" on page 147

who

Devices supported

This command is supported in all Digi Connect Family devices.

Purpose

Displays active connections to and from the device.

Required permissions

Permissions must be set to “set permissions who=execute” to use this command. See "set permissions" on page 86 for details on setting user permissions for commands.

Syntax

```
who
```

Options

None at this time.

Examples

Display a list of all current connections

```
who
```

See also

"kill" on page 33. The “kill” command is used to kill a connection.

Chapter 3 Modem Emulation Commands

This chapter describes the commands that can be issued when Digi devices are configured in modem emulation mode.

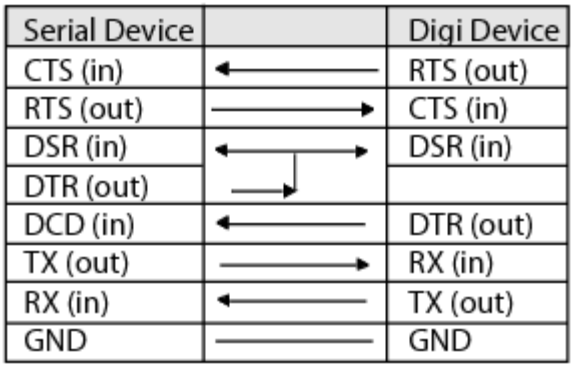
What Is Modem Emulation?

Modem emulation enables a system administrator to configure a networked Digi device to act as a modem. The Digi device emulates modem responses to a serial device and seamlessly sends and receives data over an Ethernet network instead of a PSTN (Public Switched Telephone Network). The advantage for a user is the ability to retain legacy software applications without modification and use a less expensive Ethernet network in place of public telephone lines.

As an aid in configuring modem emulation, the Digi Device Setup Wizard and the default web interface have a serial port profile for modem emulation.

Modem Emulation Cable Signals

Use the following signal assignments to make a cable connecting the Digi device to a serial device.



DSR and DTR on the serial device side are connected to the DSR signal of the Digi device.

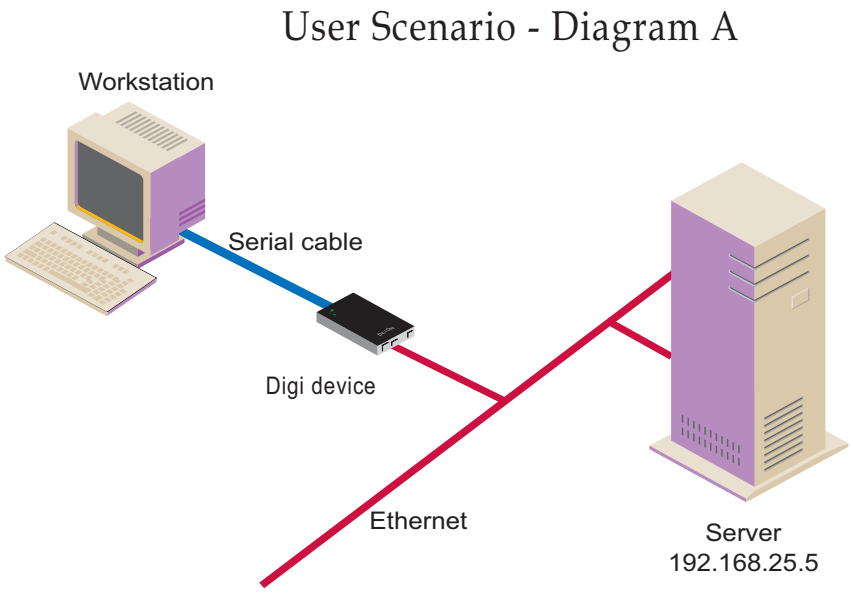
Modes of Operation

There are two modes of operation in modem emulation:

- Command mode: Issuing AT commands to a Digi device.
- Data mode: After a network connection is established, the device switches to data mode.

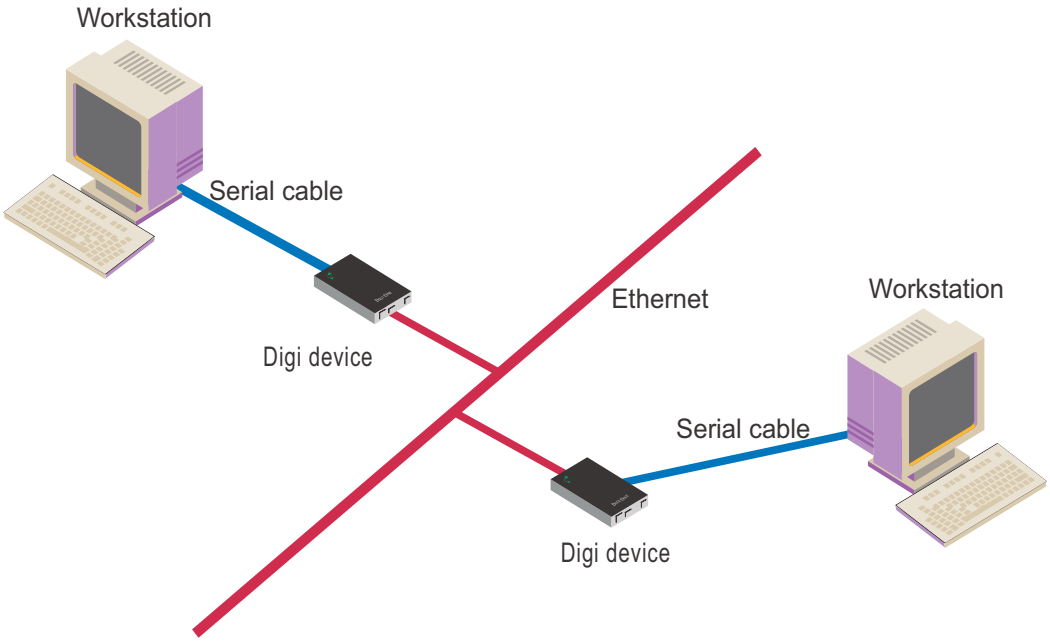
Common User Scenarios for Modem Emulation

The Digi device in modem emulation mode allows for the easy replacement of modems in almost any environment where there is a LAN or WAN.



In Diagram A, the Digi Connect device replaces a modem connected to a workstation running an application. The Digi Connect device allows for the use of software applications without modification by responding to all the AT commands configured in the workstation application. The Digi Connect device connects to the IP Address of the server when an `ATDT` *`ipaddress:port`* (`ATDT 192.168.25.5:50001`) command is issued. Once the remote device establishes the TCP connection, a CONNECT message is sent to the serial port and only then does the Digi device switch from AT command mode to data mode. Using the modem escape sequence or dropping DTR on either side terminates the connection. A DISCONNECT message will be sent to the application if the remote side closes the TCP connection.

User Scenario - Diagram B



In Diagram B, two Digi devices will replace modems on both sides of the connection. The initiation of the connection occurs with either of the Digi devices. If both ends are Digi devices, the TCP listening port number is 50001 for port 1. An example of the connection command is `ATDT 192.168.25.30:50001`. Upon establishing a successful TCP connection, a CONNECT message is sent to the serial port and only then does the Digi device switch from AT command mode to data mode. After the CONNECT is received, the transmission of data begins. Using the modem escape sequence or dropping DTR on either side terminates the connection.

Connection Scenarios for Modem Emulation

Modem emulation can involve the following types of connection scenarios:

Outgoing Modem Emulation Connection

In an outgoing modem emulation connection, a serial device sends an ATD*x.x.x.x:y* command, which triggers the Digi device to establish a connection to destination IP=*x.x.x.x*, port=*y*.

Incoming Modem Emulation Connection

In an incoming modem emulation connection, a device on the network connects to port 50001 (50000+1 = 1st serial port). This incoming connection triggers the Digi device to generate a RING on the serial port. The device attached to the serial port will answer the RING and the connection is established.

Modem Emulation Pooling

Modem emulation pooling is a combination of Incoming Modem Emulation Connection and a hunt group. A device on the network connects to port 50000. The Digi device checks if a serial port configured for modem emulation is available. If so, it connects to the port, otherwise returns an error.

Modem Emulation Bridge

A modem emulation bridge is combination of Outgoing and Incoming Modem Emulation Connections, in which both serial devices require to talk to a modem. The first serial device connects to the second device using ATDx.x.x.x:y, the second device gets a RING and accepts the incoming connection.

About the Commands in this Chapter

This chapter describes the Digi-specific modem emulation commands that have been implemented for Digi Connect devices. It is divided into several sections:

- The AT command set. These are commands to perform actions in a modem-emulation connection.
- Modem S-Register definitions.
- A description of the result codes for the commands.

Accepted But Ignored AT Commands

Any other commands not described in this chapter but in the standard AT command set are accepted but ignored and therefore have no effect. Such commands are pertinent to actual modems, but not to modem emulation.

Modem Emulation AT Command Set

The following commands can be issued to perform actions in a modem-emulation configuration scenario.

AT Command	Function	Result Code
n+++*n*	When in data mode, this command causes the modem to switch to command mode. The value of *n* corresponds to the required delay before and after the escape sequence is entered. The delay can be changed by modifying S-register 12. The escape character can be changed by modifying S-register 2.	
A/	Repeats the last command string.	
AT?	Prints the value of the last-accessed S-register.	
ATA	Answer command: Answers an incoming TCP connection and switches to data mode.	
ATD (*ipaddress*): (*ipport*)	Used to connect to a remote network device. This command directs the Digi device to go on-line, dial according to the IP address entered as follows, and attempt to establish a TCP connection. Dial Modifiers. The valid dial string parameters are described below. Punctuation characters may be used for clarity with parentheses, hyphen, and spaces being ignored. • 0-9: DTMF digits 0 through 9. • . (period): Dot notation used for IP addresses. IP addresses are written as four numbers separated by periods, where the first number is between 1 and 255, and the other three numbers are between 0 and 255. Enter the IP address in the format *xxx.xxx.xxx.xxx* • : (colon): Colon notation used for the TCP port. • L: Redial the last number. The modem will reconnect to the last IP address accessed. The L must immediately follow the D, and any following characters are ignored. • P: This command is accepted but not acted on. • T: This command is accepted but not acted on. • R: This command is accepted but not acted on. • , (comma): This command is accepted but not acted on.	
ATE*n*	Command echo. The Digi device enables or disables the echo of characters to the DTE according to the parameter supplied. The parameter value, if valid, is written to S14 bit 1. • E0: Disables command echo. • E1: Enables command echo.	OK n=0 or 1 ERROR Otherwise
ATH	Disconnect (Hang up) command. H0, H1: Hangs up the TCP connection if a connection is active.	OK n=0 or 1 ERROR Otherwise
ATI*n*	Identification command. • I0, I1: Reports product name. • I3: Reports product name, firmware revision. • I4: Reports product configuration. • I6: Reports network connection information.	OK n=0 or 9 ERROR Otherwise

AT Command	Function	Result Code
ATO	Return to on-line data mode. If the modem is in the on-line command mode, the modem enters the on-line data mode. If the modem is in the off-line command mode (no connection), ERROR is reported. • O0, O1: If there is an active connection, switches the modem to data mode.	OKn = 0 or 1 and a connection exists. ERROR Otherwise or if not connected.
ATQ*n*	Quiet results codes control command. The command enables or disables the sending of the result codes to the DTE according to the parameter supplied. The parameter value, if valid, is written to S14 bit 2. • Q0: Enables result code to the DTE (Default). • Q1: Disables result code to the DTE. • Q2: Disables “CONNECT” result codes. • Q3: Disables “CONNECT” result codes on incoming connections.	OK n=0 or 1 ERROR Otherwise
ATS*n*	Read/Write to the specified S-Register. • *n* Establishes S-register *n* as the last register accessed. • *n*=*v* Sets S-Register *n* to the value *v*. • *n*? Reports the value of S-Register *n*. See "S-Register Definitions" on page 159 for definitions of S-Registers.	OK n=0 or 1 ERROR Otherwise
ATV*n*	The verbose setting for result codes. This command selects the sending of short-form or long-form codes to the DTE. The parameter, if valid, is written to S14 bit 3. • V0: Result codes are issued in numeric or short form. Line feeds are not issued before a short-form result. • V1: Result codes are issued in text or long form. This is the default.	OK n=0 or 1 ERROR Otherwise
ATZ	Load configuration. Reloads the S-register configuration from flash memory. See "S-Register Definitions" on page 159 for definitions of S registers.	OK n=0 or 1 ERROR Otherwise
AT&C*n*	DCD option. The Digi device controls the DCD output in accordance with the parameter supplied. The parameter value, if valid is written to S21 bit 5. • &C0: DCD remains ON at all times. • &C1: DCD follows the state of the connection.	OK n=0 or 1 ERROR Otherwise
AT&D*n*	DTR option. This command interprets the ON to OFF transition of the DTR signal from the DTE in accordance with the parameter supplied. The parameter value, if valid, is written to S21 bits 3 and 4. Also see S25. • &D0: DTR drop is ignored (assumed ON). • &D1: DTR drop is interpreted by the modem as if the asynchronous escape sequence had been entered. The modem returns to command mode without disconnecting. • &D2: DTR drop causes the modem to hang up. (Default.) • &D3: DTR drop causes the modem to do a soft reset, as if the ATZ command was executed.	OK n=0 to 3 ERROR Otherwise
AT&F	Restore factory configuration. The device reloads the factory default S-register configuration from flash memory. The factory defaults are identified for each command and in the S-Register descriptions. A configuration consists of a subset of S-Registers.	OK n=0 or 1 ERROR Otherwise

AT Command	Function	Result Code
AT&V	Displays current values and settings. • AT&V0- AT&V5: Displays S-Register/command values for the current and stored configuration. • AT&V6: Displays current network settings.	OK n=0 to 5 ERROR Otherwise
AT&W*n*	Store configuration. Stores the specified S-registers in flash memory.	OK n=0 or 1 ERROR Otherwise

S-Register Definitions

Following is a description of the S-registers that can be set.

Register	Function	Range	Units	Default
S0	Rings to Auto-Answer. Sets the number of rings required before the Digi device automatically answers a call. Setting this register to Zero disables auto-answer mode.	0-255	Rings	0
S1	Ring Counter. Specifies the current number of rings. S1 is incremented each time the modem detects a ring signal on the telephone line. S1 is cleared when the existing connection is established or dropped.	0-255	Rings	0
S2	Escape Character. S2 holds the value of the ASCII character used as the escape character. The default value corresponds to an ASCII '+'. A value over 127 disables the escape process. That is, no escape character will be recognized.	0-255	ASCII	43
S3	Carriage Return Character. Sets the value of the carriage return character used when displaying commands or results.	0-127	ASCII	13
S4	Line Feed Character. Sets the character recognized as a line feed when displaying commands or results. If verbose result codes are used, the Line Feed control character is output after the Carriage Return control character.	0-127	ASCII	10
S5	Backspace Character. Sets the character recognized as a backspace, used to erase the last character typed on the command line.	0-32	ASCII	8
S12	Escape Prompt Delay. The amount of time required before and after an escape sequence (+++) is entered in order for the modem to transition from data mode to command mode.	0-255	0.02 second, 20 ms	50 1 second
S14	General Options Status. Indicates the status of command options. • Default: 138 (8Ah) (10001010b) • Bit 0: Ignored. • Bit 1: Command echo (E*n*): 0 = Disabled (E0). 1 = Enabled (E1). (Default.) • Bits 2 and 4: Quiet mode (Q*n*): 0 = Display result codes (Q0). (Default.) 1 = Do not display result codes (Q1). 2 = Disables “CONNECT” result codes (Q2). 3 = Disables “CONNECT” result codes on incoming connections (Q3). • Bit 3: Result codes (V*n*): 0 = Display numeric result codes (V0). 1 = Display verbose result codes (V1). (Default.) • Bits 5-7: Ignored.			138 (8Ah)

Register	Function	Range	Units	Default
S21	General Options Status. Indicates the status of command options. • Default: 52 (34h) (00110100b) • Bits 0 - 2: Ignored. • Bits 3-4: DTE's DTR behavior (&D*n*): 0 = DTR drop is ignored (&D0). 1 = DTR drop causes a transition from data to command mode without hanging up an existing connection (&D1). 2 = DTR drop hangs up the existing connection (&D2) (Default.) 3 = DTR drop causes the modem to do a soft reset if the ATZ command was executed (&D3). • Bit 5: Modem's DTR behavior: 0 = The modem's DTR remains on at all times (&C0). 1 = The modem's DTR follows the state of the TCP connection (&C1). (Default.) • Bits 6-7: Ignored.	-	-	52 (34h)
S25	Delay to DTR Off. The amount of time that the modem will delay before taking the action specified by the AT&D*n* command.	0-255	s or 0.01 s	5

Result Codes

Following is a description of the return codes returned by modem emulation commands.

Short	Long Form		Short	Long Form		Short	Long Form
0	OK		13	CONNECT 7200		84	CONNECT 33600
1	CONNECT		14	CONNECT 12000		91	CONNECT 31200
2	RING		15	CONNECT 14400		165	CONNECT 32000
3	NO CARRIER		16	CONNECT 19200		166	CONNECT 34000
4	ERROR		17	CONNECT 38400		167	CONNECT 36000
5	CONNECT 1200		18	CONNECT 57600		168	CONNECT 38000
6	NO DIALTONE		19	CONNECT 115200		169	CONNECT 40000
7	BUSY		20	CONNECT 230400		170	CONNECT 42000
8	NO ANSWER		59	CONNECT 16800		171	CONNECT 44000
9	CONNECT 0600		61	CONNECT 21600		172	CONNECT 46000
10	CONNECT 2400		62	CONNECT 24000		173	CONNECT 48000
11	CONNECT 4800		63	CONNECT 26400		174	CONNECT 50000
12	CONNECT 9600		64	CONNECT 28800			

Index

O

P

Q

R

S

X